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Respiratory Diseases of Swine

The Retained Placenta Syndrome in Cattle

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Aortic Thrombosis

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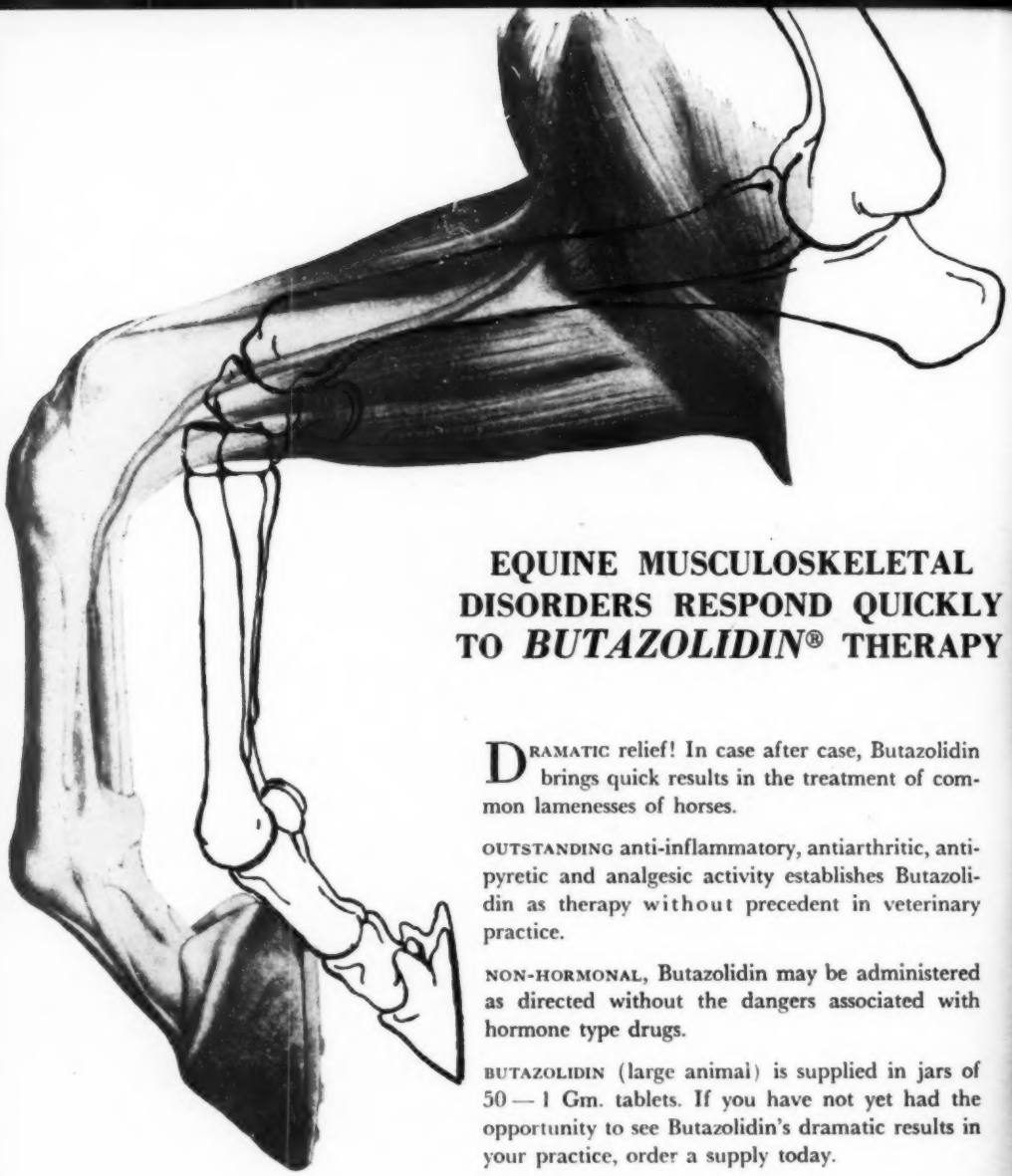

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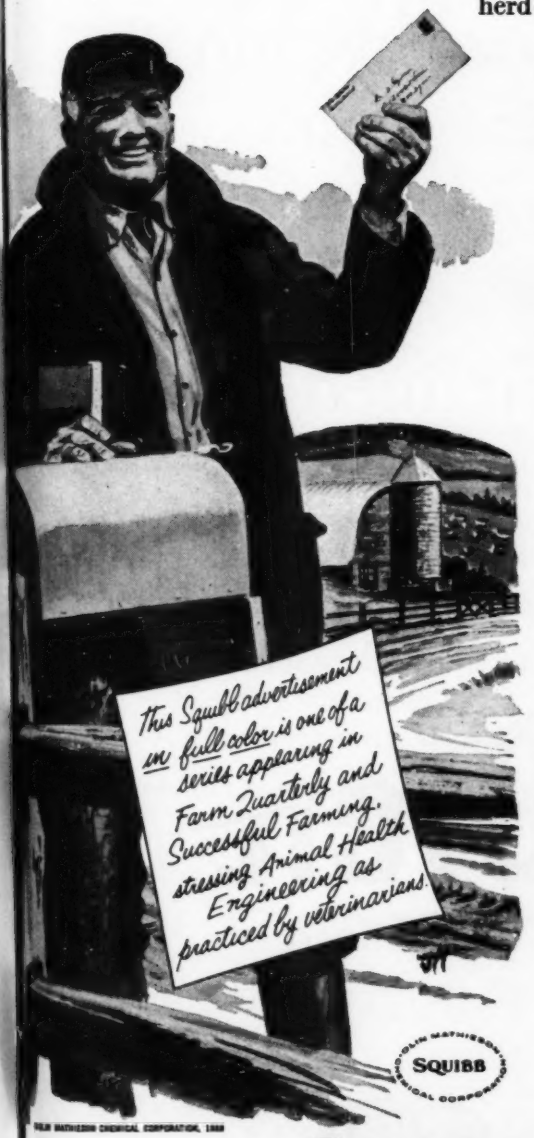
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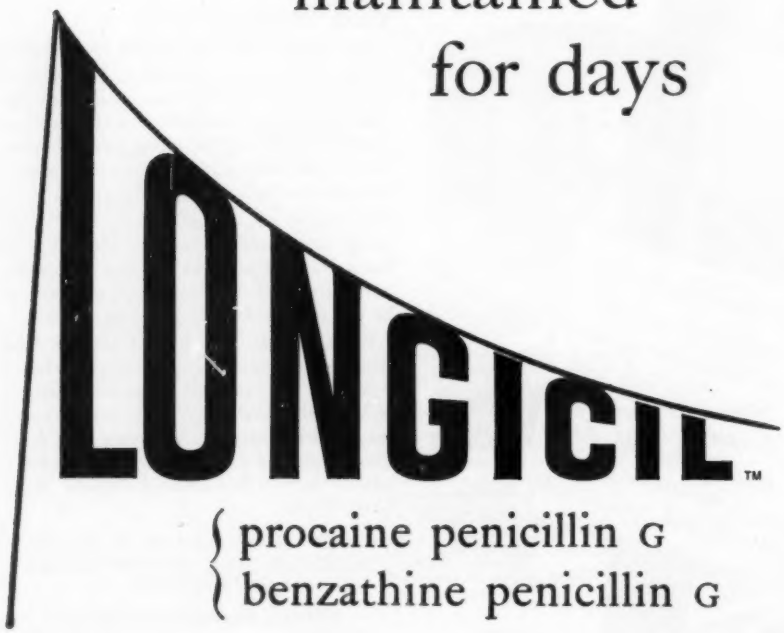

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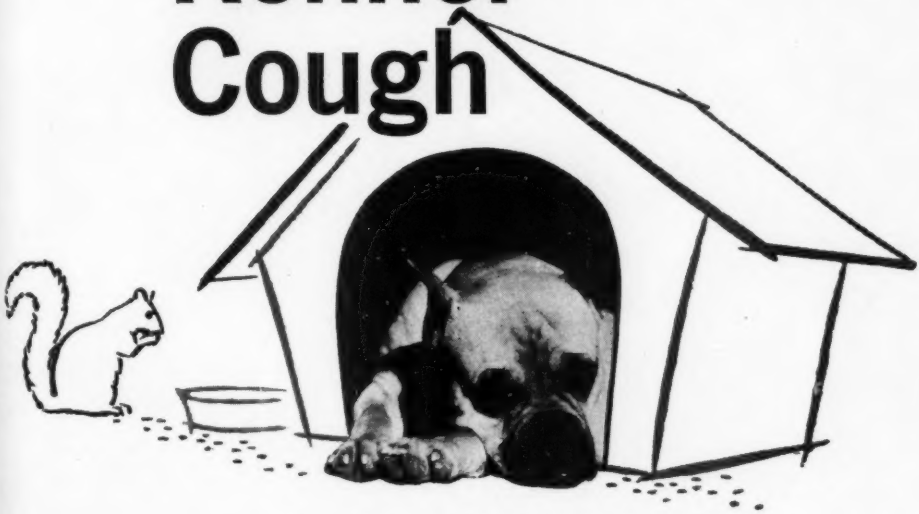

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ENTEFUR® *bolus veterinary, small*

bactericidal action promptly controls symptoms in 93-95%[1,2] of calves

no development of resistant bacterial strains or of cross-resistance

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ENTEFUR is a bolus containing the new antibacterial nitrofuran, FURAMAZONE® (brand of nifuraldezone) 1 Gm., and bismuth subsalicylate 0.26 Gm. for its mildly astringent, antidiarrheal action. FURAMAZONE is a *new* nitrofuran selected for its specific bactericidal activity against gram-negative and gram-positive enteric bacteria, including the virulent strains of E. coli found in calf enteritis.

ENTEFUR is nontoxic even when administered in doses well above therapeutic levels.

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1. Osborne, J. C. *in* New Horizons in Chemotherapy. Proceedings of First Regional Conference on the Nitrofurans in Veterinary Medicine. In press.
2. Bull, W. S.: N. Amer. Vet. 38: 3 (Jan.) 1957.

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NITROFURANS—a *new* class of antimicrobials—neither antibiotics nor sulfonamides

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for retained placenta

FUREA® *bolus veterinary*

FUREA effectively combats the dangers that arise in bovine retained placenta by a 2-way action:
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Clinical usage produced a rapid decrease in signs of infection, reduction or elimination of malodor, and unimpaired fertility in over 90% of treated cows.
FUREA is an intrauterine bolus containing FURACIN® (brand of nitrofurazone) 0.12 Gm. and urea 12 Gm. The bolus disintegrates swiftly in uterine fluids, providing rapid and uniform distribution of active ingredients to the affected tissues. It is nonirritating and nontoxic.
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Supplied: Bottle of 25 boluses.

1. Jones, S. V.; Belloff, G. B., and Roberts, H. D. B.: Vet. Med. 51:413 (Sept.) 1956.

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prevention of uterine infection—early restoration of fertility in over 90% of treated cows[1]

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NOnemic gives fullest protection from a single injection—no "anemic dip" in hemoglobin levels at 3 weeks of age.

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—at dosages up to 1/20 those of prednisone or prednisolone

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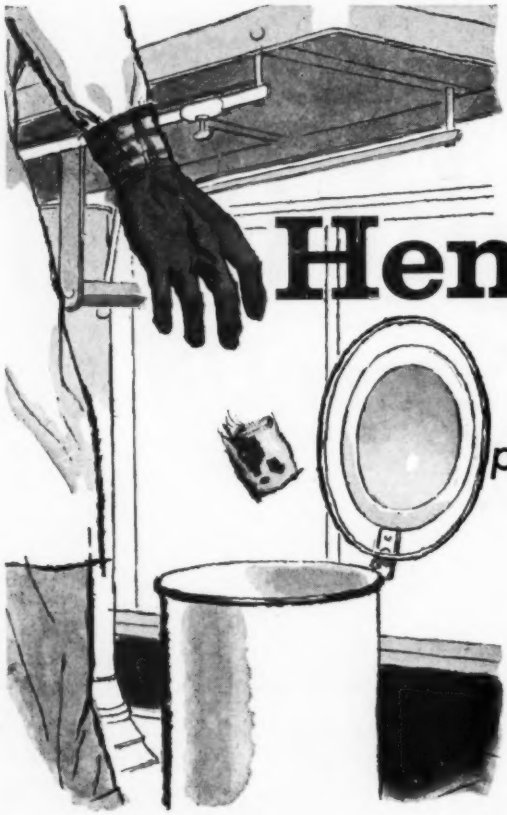

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prompt control of bleeding

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ear trimming
excising neoplasms
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fractures, internal bleeding

—as well as other conditions where the integrity of the vascular bed is impaired.

In recommended dosage there are no contraindications.

For intramuscular injection. Each 5 cc. vial contains adrenochrome isonicotinic acid hydrazone, 25 mg., present as sodium 3 hydroxy 2 naphthoate complex. Diluent: water USP, 5 cc., benzyl alcohol, 2% W/V.

RECOMMENDED DOSAGE: Small animals, 0.25 cc. to 1 cc. Foals, 2 cc.; Horses, 5 cc.

Restricted to sale by or on the order of a licensed veterinarian.

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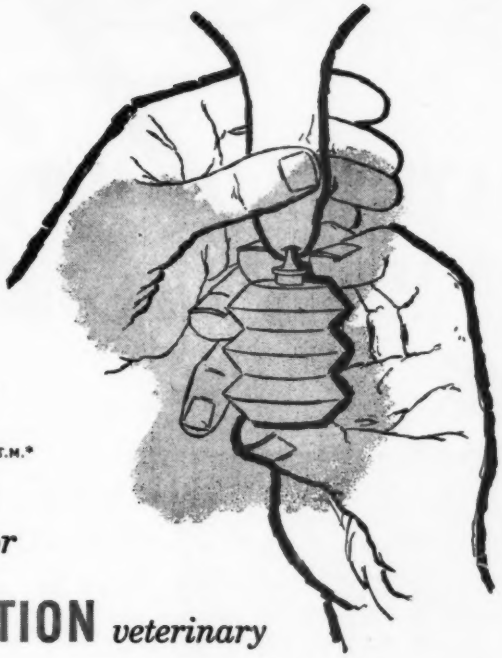
Veterinary Division

Bristol, Tennessee • New York • San Francisco • Kansas City

*U.S. Pat. 2,728,722



for **MASTITIS** *of*

dry and lactating cows

NEW SQUEEJET T.M.*

single-dose dispenser for

FURACIN® SOLUTION *veterinary*

brand of nitrofurazone

- delivers one full dose
- is discarded after using
- saves time
- is convenient, especially when a number of cows are to be treated
- unique package

*design patented

FURACIN has been shown to be strikingly effective in controlling mastitis under field conditions.[1,2] Of 7,123 lactating cows with acute mastitis, fair to excellent results were obtained in 5,597 (78%). Of 3,418 dry cows which had had mastitis during their previous lactating period, fair to excellent results were obtained in 3,104 (90%).

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1. Mires, M. H., and Chadwick, R. H.: Vet. News 10:3 (Jan.-Feb.) 1947. 2. Mires, M. H.: J. Am. Vet. M. Ass. 117:49 (July) 1950.

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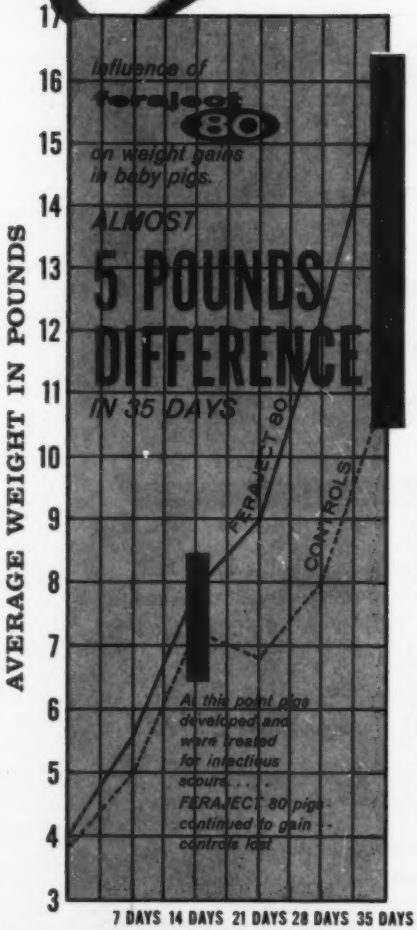

RESEARCH DATA SHOWS STEADY WEIGHT GAINS WITH FERAJECT 80

. . . even while pigs are scouring

In just a few days time over one month, pigs injected with Feraject 80 had an average gain of almost 5 pounds over control pigs. The weight of the control pigs dropped during a period in which both the controls and Feraject 80 test pigs developed infectious scours. On the other hand, the Feraject 80 pigs steadily gained weight even with the presence of scours.

What started out to be a routine weight comparison test developed into a weight gain test, under stress. It was not a test to prove Feraject 80 as a scour treatment because both the controls and Feraject 80 pigs were given identical treatment for scours when such treatment was indicated.

FERAJECT 80 AVAILABLE EXCLUSIVELY TO YOU

Feraject 80 is the only amylose complex injectable iron containing 80 mgs. of iron per cc that is sold exclusively to veterinarians. Diamond makes Feraject 80 exclusively yours.

first in progress . . . through researc

INJECTABLE IRON TO CONTAIN 80 mgs. OF IRON PER EACH C.C.

FERAJECT 80 OFFERS ADDED MARGIN OF SAFETY

At birth a baby pig possesses an insufficient supply (usually less than 100 mgs.) of iron. During the first 28 critical days of their life, they may acquire another 100 mgs. of iron through milk or other oral means if not on concrete. Iron requirements for this period are 300 mgs. This means pigs lack 100 mgs. or more of iron, which must be supplied through injections or other means.

Most iron injectables contain less than, or a maximum of, 100 mgs. of elemental iron per 2cc dose. For this reason Diamond research developed an injectable iron, Feraject 80, which offers an ADDED MARGIN OF SAFETY with an equivalent of 160 MGS. OF ELEMENTAL IRON per 2cc dose.

HIGH HEMOGLOBIN LEVEL . . . FASTER

The use of Feraject 80 increased the hemoglobin level . . . to a higher level and at a faster rate than all iron injectables tested. It aids in better disease resistance, feed utilization, and helps pigs reach market weight faster.

COMPARE THE LABELS

Don't be fooled by "ballooned" figures that lead you to believe there is more elemental iron in an injectable product than actually exists. Many labels show a high level of iron compounds, but they do not list the *elemental iron* equivalent, and are not complexed. Then there are those that are complexed and contain an equivalent of elemental iron, but they list the iron content per dose—not per cc. Check your injectable iron labels and then decide which one will do the best job for you.

COMPOSITION

Each 1cc contains the equivalent of 80 mgs. elemental iron as an amylose iron complex* with Vitamin B_{12} activity 2 mcgs. Cobalt (as chloride) 5 mcgs. Zinc 0.5 mg. (as the sulfate). Pyridoxine Hydrochloride (Vitamin B_6) 1 mg. and NEOJEL®*, in isotonic solution, preserved with Phenol 0.5%.

DOSAGE, ADMINISTRATION

For best results, Feraject 80 is to be administered intramuscularly in the ham. Prophylactic dose, 1 to 2cc. Therapeutic dose, 2cc. Minimum age for inoculation is three days.

*Patent Pending

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ailable in these package sizes: Single dose • ten 1-dose vials

MODIFIED LIVE VIRUS VACCINE

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CANINE DISTEMPER VACCINE

Modified live virus, Chick-embryo origin

and INFECTIOUS CANINE HEPATITIS VACCINE

Modified live virus, Porcine tissue culture origin—desiccated

Affiliated BRAND

Affiliated Brand Canine Distemper Vaccine, Modified live virus of chick embryo origin, and Infectious Canine Hepatitis Vaccine, MLV of Porcine tissue culture origin, is a combined vaccine containing attenuated strains of Canine distemper virus and Infectious canine hepatitis virus. A single injection of 2 cc induced immunity to challenge of virulent distemper and hepatitis viruses.

For added safety, the attenuated Infectious canine hepatitis virus is cultivated on porcine kidney cells (unnatural host). As a result, it does not reverse to virulence, even on several serial passages on dogs, and is free from viruses pathogenic for dogs.

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Produced for and sold to graduate veterinarians only

DECEM

*Patent Pending

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News Comment

Bat Rabies

The third case of human rabies attributed to bats was reported from Wisconsin recently. On September 10, Dr. Josef Preizler, State Epidemiologist, Wisconsin State Department of Health, reported the case of a 44-year-old farmer. The farmer was bitten on the lobe of his left ear by a bat on August 8. The bat was killed and discarded, and therefore was not available for examination. On August 29 the patient developed paresthesia in his left ear followed by pain and tremors spreading to the neck and left arm. The case was diagnosed as rabies September 3. The patient developed marked tremors in the left arm and exhibited opisthotonus when examined. Pharyngeal spasms occurred when he was offered water. Death occurred the following day. Negri bodies were found to be present in sections of the brain at necropsy.

Cancericidal Effects of Radiation

BUDR (5-bromodesoxyuridine) strongly augments the cancericidal effects of radiation, according to Rutgers University investigators. Cells absorb BUDR into the desoxyribonucleic acid component while multiplying and thus become far more susceptible to radiation.

Royal Jelly

Royal jelly, fed only to the queen bee, contains an antibiotic substance about one-fourth as active as penicillin, according to investigations at Louisiana State University. The antibiotic is said to halt the growth of microorganisms producing skin and intestinal infections.

Viable Tissues

Skin and body tissue can be kept viable for long periods of time in special chemical solutions at a temperature of −490 F., according to Duke University studies. Dog skin has been grafted successfully after more than four years of preservation. Corneal tissues, which usually remain viable for about 48 hours, have been kept alive for four months.

Mosquito Bite

A mosquito bite produces an allergic reaction rather than skin irritation from a poisonous substance. Department of National Health and Welfare workers in Ottawa, Canada have sensitized laboratory animals by injections or repeated bites. In such animals, bites produce a soft, whitish wheal surrounded by a red area. Male and female mosquitoes contain the same allergenic material.

Unpleasant Sounds

University of California studies show that unpleasant sounds may produce a hormonal response in animals characteristic of stress, whereas pleasant patterns of sound, such as music, may produce or maintain a hormonal state that is balanced. Sound frequency seems to be the determining factor.

"Pastors of the Land"

County agents can help ease one of the underlying causes of world tension, according to B. F. Bowman, director of marketing for American Cyanamid's Agricultural Division. Speaking recently at ceremonies honoring Fresno county farm advisor John L. Quail, Bowman said that agriculture and the distribution of its products are a primary cause of these tensions.

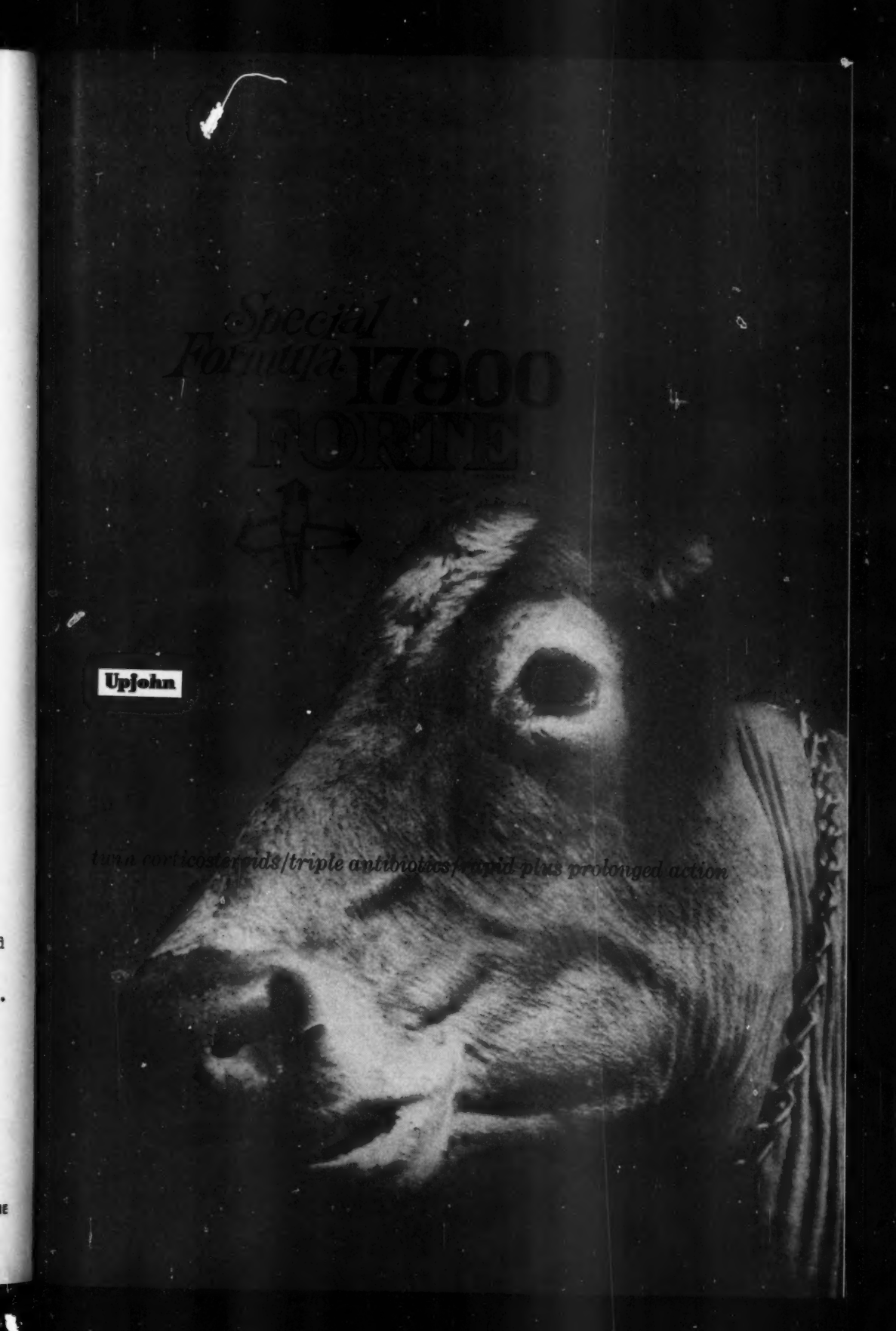
County agents spearhead the battle to reach men's minds in countries seeking through America's example to feed and clothe their populations. These "have nots" are naturals for political exploitation, he said.

"Pastors of the land, devoted to teaching the religion of the soil . . . are the forerunners of a great host of men and women who will go out from America . . . to lead men of other lands to conquer their own problems of need and want," Bowman added.

Methane by Algae

Production of methane gas by algae was discussed by Dr. C. W. Farmer in a recent letter to Hoard's Dairyman (October 10, 1959). Doctor Farmer stated: "This gas can be pressured into water. We find that in engineering tables 600 cubic feet of it can be pressured into 1 cubic foot of water. This becomes a fuel.

"The water molecules will become steam when this fuel is used in a compression engine, helping in the expansion necessary to turn over the engine. It is looked upon as one of the fuels that farmers will produce in the future for themselves, and market. It is also a smog-free fuel. The smog type particles are not present as in other fuels. Particles present readily dissipate and do not cause smog."


Special
Formula 17900
FORTE
Upjohn
turn corticosteroids/triple antinoxias/rapid plus prolonged action

the Veterinarian...

KEY MAN

in the control of Hog Cholera and Erysipelas

Two Proven Swine Biologicals Veterinarians Depend On

R_L HOG CHOLERA VACCINE
Modified live virus, vacuum dried. Available in 50, 20, 10 and 3 dose vial with diluent

R_L Hog Cholera Vaccine

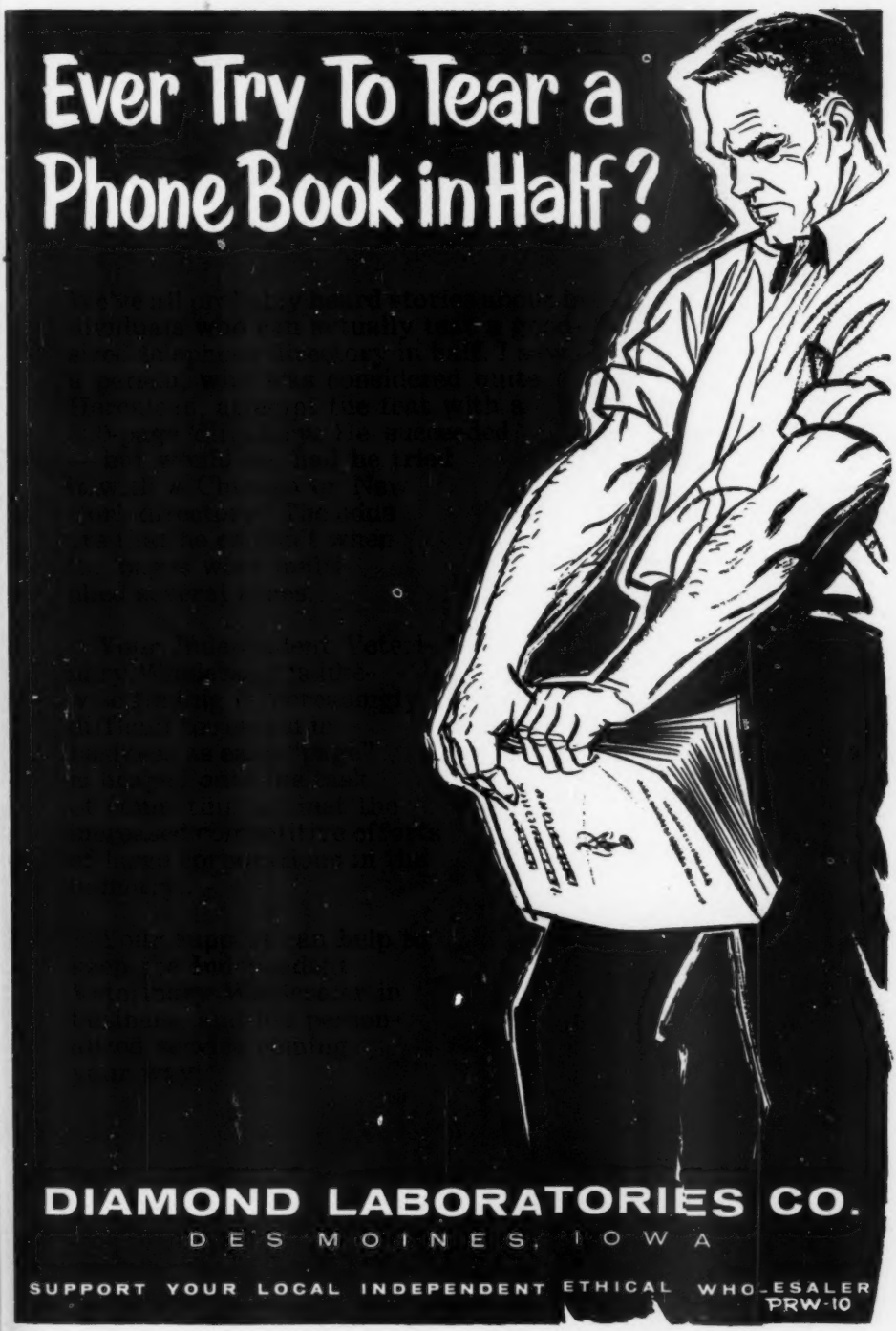
- Produces a lasting immunity—safely—with no unfavorable reaction.
- Vacuum dried for safety.
- Easily reconstituted—standard 2 cc. dose can be used with serum for quick, positive immunity.
- R_L products are sold only to graduate veterinarians.

Erysin R_L

- Field tested for safety, efficiency and reliability in the prevention of swine erysipelas.
- Requires only a single subcutaneous injection—no serum necessary.
- Cannot spread erysipelas—will not set up new foci of infection.
- R_L products are sold only to graduate veterinarians.

R_L ERYSIN
A highly concentrated, killed culture of Erysipelothrix rhusiopathiae using five antigenic strains of the organism. Available in 50 cc. and 250 cc.

RESEARCH LABORATORIES, INC.
Saint Joseph, Missouri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REFERENCES: 1. Mosier, J. E., and Coles, E. H.: Vet. Med. 53:649 (Dec.) 1958. 2. Belloff, G. B.: Calif Vet. 9:27 (Sept.-Oct.) 1956. 3. Mosier, J. E.: Vet. Med. 52:445 (Sept.) 1957.

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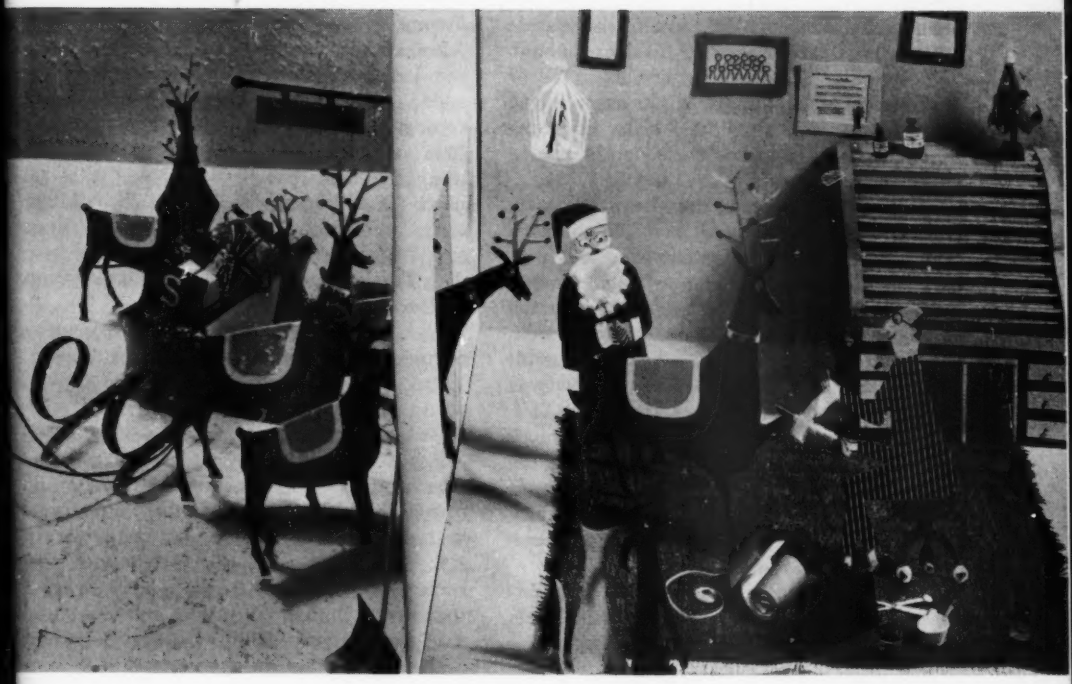

Santa and his reindeer are presented here by table-top photography. Miss Leila Johnson of the Jen-Sal Journal, created these cut-out figures as a table display. The camera study tells the rest.

REINDEER PRACTICE

by
GEORGE J. WALTERS, B.S., M.A.
Juneau, Alaska

EARLY ON DECEMBER 24TH this year, far northern radar teams will watch a rotund old saint move south. They will see him travel on the wings of the north wind blowing from the land where — in the cold light of the aurora borealis — lives a legendary form of transportation, the reindeer.

The genial, cheery Saint Nicholas is as much a part of our American Christmas as the stars are part of our flag. He came to America by way of Dutch colonies, and American tongues quickly transformed his name to Santa Claus. But the reindeer for Santa's sleigh are American in origin. They came into legend through a poem called "A Visit from St. Nicholas," written in 1822 by Clement C. Moore. The poem was published in a newspaper and then spread throughout the world, thus creating the Santa and his reindeer children know and love today.

Although the eight famous reindeer are known for their gift bearing service, along the Bering

Sea's coastal region and some of the islands of Alaska, the deer assumes a vital economic function. In view of the limited reindeer practice in most states, VM has asked me to serve as its reporter from Alaska in giving this first hand account of problems in reindeer practice.

During Alaska's last days as a territory, many prominent people from Washington toured the state. (Two senatorial and congressional seats as well as a full slate of state officials had to be elected.) Among the many interesting sights they inspected were the reindeer herds of the Bering Sea's coastal region. Senator Church of Idaho reported that he enjoyed his reindeer steak, but Mrs. Church, like her small boys and millions of other kids, just couldn't partake of the flesh of Santa's chosen animals. The fascination of this great myth is excelled only by the real-life contribution of the reindeer to our northern regions.

To the Bering Sea coastal region the reindeer assumes the same position as the herds of cattle are to Texas and Wyoming, or the sheep to New Mexico and Arizona. Words like corral, round-up, throwing a yearling, and branding are part of the everyday language of that far-northern area. The deer is the animal which God's providence seems to have provided for those northern regions, being food, clothing, house, furniture, implements, and transportation to the natives. Its milk and flesh furnish food. Its marrow, tongue, and hams are considered choice delicacies. Its blood mixed with the contents of its stomach, forms a famous native dish.[1]

Reindeer in Alaska

Reindeer were introduced into Alaska in 1892.[4] Dr. Sheldon Jackson, a Presbyterian missionary, was largely responsible for this action. A total of 1,280 live deer were successfully relocated from Russian Siberia between the years 1892 and 1902. Both Federal and private funds were used to finance the project. The object of this project was to stabilize the Eskimo economy, which suffered due to the depletion of sea mammals from excessive hunting by the whaling industry.[6]

The transplanted deer thrived under the favorable conditions found in that part of Alaska. Wolves were rarely seen in the reindeer areas and the ranges were in excellent condition. The deer multiplied rapidly. By 1932, just 40 years after the first successful introduction of the animals, their numbers increased to over 600,000 head. This figure includes live reindeer only. (By 1922 about 125,000 had been killed for food and clothing.) Herds were distributed throughout the coastal area and to Barrow in the North.[2]

Until 1938 there existed several privately owned herds in the hands of white men. The largest of these herds was the Lomen herd. Carl Lomen signed a contract with the Canadian Government to deliver 3,000 reindeer to Northwestern Canada from his Alaska herd. This required a 1,200 mile overland drive through brutal, unmapped vast stretches of frozen wasteland. Andy Bahr, a Lapp herder, past 60 years of age, came out of retirement from Seattle to head the drive. It took Mr. Bahr and his party five years to make delivery to the Canadian authorities. Thus the Alaska reindeer were instrumental in establishing the reindeer economy among the Eskimos of Canada.

Commercial reindeering by non-natives was made illegal with the passage of the Reindeer Act of 1938. However, the depression of the 1930's helped to spell doom to the business with unfavorable market conditions resulting from state side competition.[6]

The 18 years following 1932 were not kind to the reindeer population. Their numbers dwindled to 38,000 by 1938. By 1950 the deer population reached a low of 26,000 animals. The current count is approximately 40,000. Many theories are advanced for the rapid decline of the reindeer. The downgrade was probably the result of a number of factors.

The reindeer has been developed from the wild caribou *(Rangifer arcticus)* of Northern Europe and Asia through countless generations of breeding. The breeding up has been without particular direction; the present type is perhaps not far removed from the original. However, there is a considerable difference in the temperament of the animals and their range habits. The reindeer's ancestry makes for a serious

disadvantage for herd owners. Wild caribou cause more grief than the wolves and other predators. A migrating band of caribou can, and has, put a reindeer herder out of business overnight. Reindeer have the unhappy tendency of following a leader much the same as sheep. Migrating caribou can absorb an entire herd. Single caribou that wander into a herd may try to escape the herders and lead reindeer from the main herd. Thus years of work in building up a herd can be negated overnight. The reindeer, being a domestic animal, will follow the caribou but cannot keep up with them. It will fall behind and become the prey of the predators. Large parts of Alaska are unsuitable for reindeering because of the presence of caribou. The Fairbanks area falls into that category.

Wolf predators, almost non-existent prior to the mid 1930's, had increased by the late 1930's to such an extent that they constituted a serious menace to the herds. In 1957 wolves accounted for about 18% of losses in herds. Other predators such as grizzlies, wolverines, lynx, eagles and ravens are occasionally important.[6]

Other theories advanced for the rapid and sudden decline in the number of deer are: overgrazing of local ranges, lack of herding, loss of interest because of company ownership, and excessive slaughter.

Reindeer as Grazing Animals

In the Annual Extension Report for the year 1958, United States Department of Interior, Bureau of Indian Affairs, Juneau, Alaska Office, the opinion as to the rapid decline is stated as follows: "Nevertheless, it is my opinion that the primary reasons for the decline of the deer population were the lack of herding and excessive slaughter. Proper herding methods would have minimized the dangers of overgrazing and also would have been effective in keeping the predation losses at a minimum. It is a matter of record that in some herds, more deer were butchered annually than could be replaced. Indiscriminate butchering of breeding bulls and females for human consumption, dog food and fox bait were common occurrences."[6]

Reindeer on the range most closely resemble cattle, but band together like sheep. Like horses they trample over much range in nervous feeding, but unlike horses usually travel against the wind. In winter they paw through the snow with their forefeet to reach lichens and other forage. During the summer they move over considerable range, and at times cover distances of 15 to 20 miles against the wind. In winter they graze over a comparatively small area, and remain for the most part in one general locality. At fawning time the herd divides, the does grouping by themselves and the bucks, steers and some of the yearlings banding together elsewhere.[8]

Reindeer become attached to their accustomed haunts, and once well located on a range will unerringly return to it if moved away. Unless restrained the animals instinctively seek their favorite fall, winter, or summer pastures. Such reindeer pests as mosquitoes, horseflies, and warble flies are an important factor in the choice of summer pasture, since they cause them to resort to the wind-swept areas along the coast, or the ridges and mountain tops of the interior. In Alaska the typical summer range of the coast is often a wet tundra or hummocky ground (niggerheads) with many ponds and sloughs, and over range of this type the deer graze with apparent ease. The animals are fleet of foot and seem to travel as readily over niggerheads as over ground more level and firm.

The Lichen Plant

The plant that furnishes the bulk of forage is the lichen plant. Reindeer and lichen go hand in hand. Lichen plants are entirely different from herbaceous and shrub vegetation in character and reaction to grazing use. They do not, like the herbaceous vegetation, furnish a renewed forage crop from year to year, but require a long period of years to recover from one season's cropping. Lichens grow very slowly and are of limited height, but attain a very great age. They are of comparatively delicate structure, infirmly anchored to the soil, and are readily removed either by trampling or picking by hand. Under summer conditions they often become dry and brittle and are easily destroyed when moist or wet.

They are of almost spongy texture when wet and less easily injured.[3]

The lichen plant is a composite organism — an alga and a fungus living together. The relationship has become so intimate that lichens are often regarded as autonomies or morphological units rather than symbiotic colonies of algae and fungi. It grows under a great variety of conditions of climate and habitat. Their general distribution both vertically and horizontally is extensive. All are capable of enduring desiccation for long periods without losing their vitality.

Administration

The Bureau of Indian Affairs administers the reindeer industry. The island herds of Umnak, St. Matthew, St. Paul and Atka, not herded for many years, were relinquished to the custody of the Bureau of Sport Fisheries and Wildlife in 1957 for management as game animals. The deer on these islands and on Kodiak Island are estimated to number about 9,000.

Fourteen herds are under the jurisdiction of the Bureau of Indian Affairs with a total estimated population of 31,000. Of these, the government owns approximately 8,400 head outright and an additional 7,800 have been loaned out on contract. The remainder are privately owned.

The government owns and operates a herd on Nunivak Island. Loans of deer are made on a five year repayment contract basis. At the end of the loan period, the number of deer borrowed are returned to the lender. Both, the government and private owners make such loans.

Reindeer as Food

Reindeer meat compares favorably with beef. However, some people think it tastes more like lamb. It is fine grained, contains a good palatable fat, and when fresh is exceptionally juicy and tender. The long rangy type deer is usually heavier and better for meat production. The dressed weight of a carcass averages 150 pounds, with 300 pounds as the maximum.

Different cuts and organs of three reindeer were analyzed for refuse, dry matter, protein, fat, ash, iron, vitamin A, thiamin, riboflavin and niacin. The results showed that the fat content of the meat was about 4 to 5%. The protein content was about 22%. All analyses revealed a higher iron content than found in beef. The niacin value was about the same; the riboflavin value considerably higher than in beef.

The protein content of liver was of the same value as in the red meat; heart and kidney however, had lower values. A great variation in iron content was found in the livers. Heart and kidney had about the same iron content as the red meat.

In liver the riboflavin and niacin were higher than in kidney and heart in accordance with previous results from the common domestic animals.[7]

Besides supplying meat for the natives, the government hopes to make reindeer meat available to the population in general. One outlet in Anchorage handles reindeer meat on a regular basis.

That there is more interest in reindeer meat in the city of Anchorage than ever before is evident from the following. A television show put it over for one small retail meat market to the extent that 16,000 lb. of reindeer meat was sold in one day. Anchorage merchants want a reliable, economical, and constant source of supply and the Reindeer Project of the Bureau of Indian Affairs is determined to give it to them.

Diseases and Parasites

Hoof rot and dermatitis are the most troublesome diseases of reindeer. The hoof disease has been advanced as a major cause for the decline in the deer population. During the winter, the deer must use their hoofs to paw through the snow to get at the lichens. An animal that becomes incapacitated by hoof rot will starve. To stop the spread of this disease, infected animals are killed and the locale of the pasture changed.

Eye trouble (keratitis) or pink eye was once reported as a common disease. It rarely occurred in both eyes. The infection is seasonal. It is not considered to be common at present.

Warts (papilloma) are more common than in either cattle or sheep and they often attain a large size. They appear in the spring and disappear in the winter. How-

ever, they are not a cause for much concern.

Bronchial pneumonia and lungworms (Dictyocaulus sp.) are a cause of concern. Bronchial pneumonia is associated with the lungworm. In most cases the air tubes are filled with skeins of worms. To combat this disease close grazing over the same ground should be avoided.

The warble fly *(Oedemagena torandi)* causes serious dermatitis. Present treatment calls for surgical intervention. Dead tissue is removed, and the wound is dressed with an antiseptic solution of either lysol or sulphate of copper. If lesions are large or if joints are involved, animals must be killed. Mortality caused by this parasite has run as high as 1 or 2%.

The Nostril flies *(Cephenomyia nasalis)* is a blackish bee-like insect with a round abdomen, and causes more annoyance than the warble fly. It deposits live larvae in the nostril of the reindeer.

These disease problems accounted for 8.5% of the losses among the reindeer herds under the jurisdiction of the Bureau of Indian Affairs in 1958. Total losses reported were 414 of which 35 were due to disease. Predators and other causes accounted for the balance.

There is less disease among reindeer than in domestic herds of cattle, possibly because conditions are less crowded for the reindeer than for most cattle herds. The traveler to Alaska need have no fear for his health if he eats reindeer meat.

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Lumpy Skin Disease

Lumpy skin disease of cattle (*Exanthema nodularis bovis*) of South Africa and some neighboring states is a matter of much concern. The gravity of the ailment is indicated in the remarks of Alexander at the XVI International Veterinary Congress.

"Veterinarians in Europe are well aware of the economic importance of foot-and-mouth disease. I have no hesitation in saying that in South Africa, where the condition has established itself enzootically, lumpy skin disease is as important, if not more important to the cattle industry than foot-and-mouth disease in Europe."

From the standpoint of clinical symptoms in well developed cases, there are observed skin eruptions of various sized nodules of non-uniform size occurring on localized bodily areas or even over the entire body and extensive edema of one or more limbs. Nodules may even occur in the nasal and deeper respiratory passages, in the alimentary tract, the liver, genitalia etc. Salivation, lachrymation and sticky nasal discharge are additional signs. Enlarged lymph glands may occur. The skin over the nodules frequently becomes necrotic resulting in deep seated ulcers discharging glairy pus reminding old time practitioners of the ulcers on the limbs of horses affected with farcy.

From the standpoint of differential diagnosis, there are to be borne in mind urticaria, photosensitization, insect bites, demodex infestation, foot-and-mouth disease, etc. A solid immunity of short duration—possibly three to four mouths—is observed in recovered cases. A virus occurring in high concentration in the saliva is believed to be the etiological factor. Quarantine measures are the best methods of attempting control. Vaccination is still in the offing.—*R. R. Dykstra, D.V.M.*

V

Here each month are published ideas, suggestions and comments picked up by VM reporters at veterinary meetings.

The Meeting Circuit

The pre-convention practice tip session of the Florida State Association has gained national recognition for the wealth of clinical know-how it reveals year after year. The following tips are from this year's meeting in Tampa, October 4.

Hemolytic Jaundice

Dr. W. R. Brawner, Ocala, Florida, reports good results in management of hemolytic jaundice in the newborn foal if the following treatment is initiated early. Doctor Brawner points out that these foals look weak, anemic and exhibit some visible jaundice. The red cell count is often in the two to three million range.

Blood transfusion is the principal treatment approach. Cross matching within the breed is recommended. About one-half gallon of blood is taken from the donor in one quart saline bottles. A 14 gauge bleeding needle is used.

The foal is placed on its side and one pint of blood given through a 14 gauge needle. Next 1,500 cc. of blood is withdrawn from the foal and replaced with 1,500 cc. of transfused blood. Blood can be given rather rapidly without much hazard.

The foal is taken off the mare for 48 hours. If it gets along well on a nurse mare or formula it can be put back on the mare. If the red cell count gets above four million it will probably get along all right. If this is not achieved more blood can be given. Success is usually good if transfusion is given early. A hematinic is generally prescribed.

Serpent Ulcers

An excellent preparation for treatment of serpent ulcers in cats can be obtained by combining one pound of white petrolatum, 13 gm. of anhydrous lanolin and ½ pound of Polyotic Powder.—*W. J. Weber, D.V.M., Leesburg, Florida*

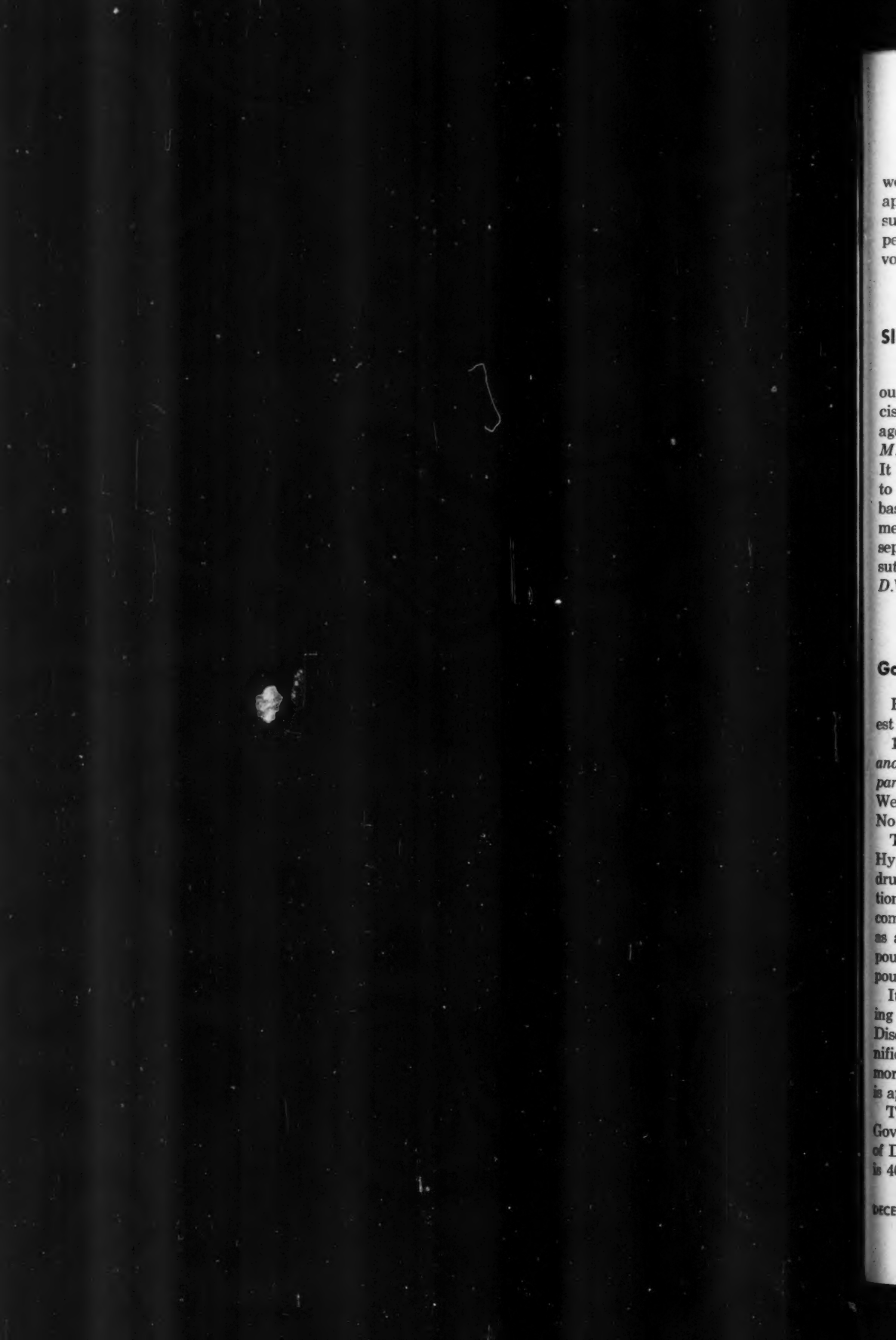
Poisoning Antidotes

The following antidotes for common poisoning are supplied by Dr. J. A. McOwen, Boynton Beach, Florida. Phosphorus: intestinal lavage using 1% potassium permanganate in 200 to 300 cc. of water. Lead: sodium sulfate, 8 to 12 gm. in 200 cc. of water as an intestinal lavage. Mercury: sodium formaldehyde sulfoxalate, 10 gm. in 100 cc. of water. Use as intestinal lavage.

DDT, chlordane, B.H.C., lindane: calcium gluconate, 5 cc. of 10% solution intravenously for 20 lb. dog or ½ to 1 gr. of phenobarbital intravenously per five pounds of body weight. Administer slowly.

ANTU: sodium amyl mercaptane, ½ cc. per kg. of body weight intraperitoneally.

1080: nine gm. of sodium acetate in 180 cc. of ethyl alcohol as intestinal lavage.



Warfarin: vitamin K and whole blood.

In any of these cases where vomiting would appear to help give 1/100 gr. of apomorphine per 10 pounds of body weight subcutaneously. Wait five minutes and repeat if necessary to produce desired vomiting.

Slipped Patella

Slipped patella is found in about eight out of ten Chihuahua dogs. Complete excision of the patella provides suitable management. As reported in a recent *J.A.V.-M.A.* article, the technic is quite simple. It is helpful to practice on a larger dog first to perfect the procedure. The procedure basically involves pushing the patella to the medial side and using blunt dissection for separation from the periosteum. Vetafil sutures are used for closure.—*J. W. Andres, D.V.M., Pensacola, Florida.*

Government Publications

Recent government publications of interest to veterinarians include the following:

1. *Examination and Evaluation of Poultry and Poultry Products—Poultry Hygiene—part 1,* U. S. Dept. Health, Education and Welfare. Food and Drug Ad. Tech. Bul. No. 2 (P.H.S. Pub. 6831), 1959.

This is the first of a series on Poultry Hygiene designed to be of value to food and drug officials in the examination and evaluation of poultry and poultry products in commerce, and to state and local agencies as a reference document in the conduct of poultry hygiene programs in intrastate poultry processing establishments.

It consists of three separate sections, dealing with General Principles, Significance of Diseases and Disposition of Carcasses, Significance of Specific Ante-mortem and Post-mortem Findings. A glossary of terms used is appended.

This is available from United States Government Printing Office, Superintendent of Documents, Washington 25, D. C. Price is 40 cents.

2. *Poultry Grading Manual,* USDA, A.M.S. Agric. Handbook No. 31. Rev. May 1959. Quoting from the Introduction: "This manual was prepared to aid in obtaining uniform application of the United States Classes, Standards, and Grades of Poultry. Although designed primarily for those in or entering poultry-grading work, it should prove useful to those teaching poultry marketing and to the poultry industry."

Included are sections on Classes of Poultry, Grades of Live Poultry, Grading of Dressed and Ready-to-Cook Poultry, Official Grading and Inspection Programs, and a selected list of references. It is available from United States Government Printing Office, Superintendent of Documents, Washington 25, D. C. Price is 30 cents.

Bovine Crowns

Dr. Ward C. Newcomb, a Chappell, Nebraska dentist, is perfecting and has patent pending a method of animal dentistry to stop the abrasion of the eight anterior lower

teeth of cattle and sheep. Since the lower anterior teeth of cattle and sheep determine how long they live — how long their nutritional standards can be met and their production maintained—this is of vital interest.

Bovine Crowns will be particularly ef-

fective in prolonging the usefulness of cattle and sheep in the prairie and great plains states. This will be greatly beneficial also to those ranchers who operate in the high fluorine areas and must combat fluorosis in their livestock as our protective layer of stainless steel will maintain the correct shape of the incisors without allowing wear.

It is common knowledge that cows pastured in mountain areas or limestone areas enjoy a much longer productive life than those cows situated in the remaining vast short and tall grass areas. It is found that cows live to be 20 years of age in these mountain and limestone areas, but in the remaining plains areas live only eight to eleven years. Through the use of Bovine Crowns cows can live to be 20 years of age in the plains areas as well, or three to eight years added to their lives.

This difference in age or length of life is caused by the abrasion to the eight lower front teeth of a cow. Each grass has a different abrasion factor. The grasses in the plains area are particularly abrasive. The soil also is a contributing factor, such as sandy soil, rocky soil, or hard land where the grass is short, as on buffalo grass land or cultivated land. In each area of the Great Plains where different natural grasses grow the abrasion of each particular grass is different, hence the fact that cows live eight to 20 years depending on the area.

This type of animal dentistry is very new and unexplored. The only field with similar correlations is human dentistry. There are many complicating factors involved. In pioneering this field the proven methods of human dentistry have been followed, taking into consideration the added problems presented by these individual animals.

It is hoped that testing programs will be completed in February of 1960 and that a proven, serviceable product will be the result.

Pony Colic and Indigestion

Indigestions and colics are no strangers to pony practice. Poor management practices either by persons unfamiliar with the care and feeding of the horse or by persons who become negligent in caring for them can be a cause of this condition. Most of the tried and proved drugs and treatments for horse colics will work in pony colics if given in proportionately smaller doses.

One relatively new product that we are using and liking a lot is Coecolysin Bengen which is produced in Germany and sold through Albany Serum Company. Coecolysin is not a drug in the usual sense of the word, but a hormone which stimulates gastrointestinal peristalsis, and simultaneously increases the gastric secretion. Best results are obtained by administering 5 cc. to 10 cc. intramuscularly initially and following with 5 cc. at three to four hour intervals until three to four doses have been given.—*Paul E. Hoffman, D.V.M., Georgia Veterinarian, January-February 1959.*

Disease-free Swine

Practitioner interest in disease-free swine repopulation programs has prompted the University of Nebraska pioneering group to hold a special conference on the subject. Conference dates have been set for February 3-5, 1960.

The conference will be limited to 50 veterinarians on a first come basis. Closed circuit TV will be used for demonstration of several hysterectomies and handling of pigs in isolation. Veterinarians using these technics in practice and hog producers using disease-free pigs will participate in the conference along with members of the university staff. Veterinarians interested in learning first-hand about these important developments in disease control should contact Dr. E. Crosby Howe, Department of Animal Pathology and Hygiene, University of Nebraska, Lincoln 3, Nebraska for programs and registration forms.

Leg Blister

A mild leg blister can be prepared by combining 8 oz. of ether, 4 oz. tincture of opium, 4 oz. oil of wintergreen, q.s. one quart of strong tincture of iodine.—*W. R. Brawner, D.V.M., Ocala, Florida*

Meeting Circuit Veterinary Calendar

Nov. 30—Dec. 1. **Midwest Veterinary Nutrition Conference.** President Hotel, Kansas City, Missouri. Mr. Lloyd Larson, Midwest Feed Manufacturers Association, 20 W. 9th Street, Kansas City 5, Missouri, executive secretary.

Dec. 1-3. **Nebraska Veterinary Medical Association,** winter meeting. Cornhusker Hotel, Lincoln, Nebraska. Dr. H. E. Hedlund, Wahoo, Nebraska, program chairman.

Dec. 3. (6:30 p.m.) **Eastern Illinois Veterinary Medical Association.** Hotel Tilden Hall, Champaign, Illinois. Dr. Edwin I. Pilchard, Jr., College of Veterinary Medicine, University of Illinois, Urbana, secretary-treasurer.

Dec. 6-8. **Arizona State Veterinary Medical Association,** annual meeting. Rancho Grande Hotel, Nogales, Arizona. Dr. J. D. McCullough, 702 Yale Drive, Tucson, Arizona.

Dec. 7-8. **Kentucky Veterinary Medical Association,** winter meeting. Sheraton-Seelbach Hotel, Louisville, Kentucky. Dr. L. S. Shirrell, 545 East Main, Frankfort, Kentucky, secretary.

Dec. 15-18. **United States Livestock Sanitary Association,** 63rd annual meeting. Sheraton-Palace Hotel, San Francisco, California. Dr. James E. Stuart, 1220 N Street, Sacramento 14, California, chairman.

Jan. 6-8. **New York State Veterinary College,** Cornell University, 52nd annual conference for veterinarians. Cornell University, Ithaca, New York. Dr. George C. Poppensiek, dean.

Jan. 10-12. **Kansas Veterinary Medical Association,** 56th annual convention. Broadview Hotel, Wichita, Kansas. Dr. M. W. Osburn, secretary-treasurer.

Jan. 10-12. **Tennessee Veterinary Medical Association,** annual meeting. Noel Hotel, Nashville, Tennessee. Dr. H. W. Hayes, 5009 Clinton Pike, Knoxville, Tennessee, secretary-treasurer.

Jan. 11-12. **Nevada State Veterinary Association,** annual winter meeting. Riverside Hotel, Reno, Nevada. Dr. Brian L. Hutcherson, 2490 South Virginia, Reno, Nevada, secretary.

Jan. 13-15. **Indiana Veterinary Medical Association,** annual convention. Hotel Severin, Indianapolis, Indiana. Dr. L. M. Borst, 3315 Shelby, Indianapolis, Indiana, secretary.

Jan. 20-21. **Michigan State University,** 37th annual postgraduate conference for veterinarians. College of Veterinary Medicine, Michigan State University, East Lansing, Michigan. Clayton Wells, conference consultant.

Jan. 21-23. **Intermountain Veterinary Medical Association.** Hotel Utah, Salt Lake City, Utah. Dr. R. A. Bagley, 4600 Creek View Drive, Murray, Utah, secretary-treasurer.

Jan. 25-27. **Minnesota State Veterinary Medical Society.** Hotel St. Paul, St. Paul, Minnesota. B. S. Pomeroy, College of Veterinary Medicine, St. Paul 1, Minnesota, secretary-treasurer.

Jan. 26-27. **Short Course for Louisiana Veterinarians.** Pleasant Hall, L.S.U. Campus, Baton Rouge, Louisiana. Dr. R. B. Lank, Department of Veterinary Science, LSU, chairman.

Feb. 1-2. **Oklahoma Veterinary Medical Association.** Biltmore Hotel, Oklahoma City, Oklahoma. Dr. W. F. Irwin, 3550 South Peoria Avenue, Tulsa, Oklahoma, secretary.

Feb. 1-3. **California Veterinary Medical Association,** midwinter conference. School of Veterinary Medicine, University of California, Davis. Kenneth Humphreys, 3004 Sixteenth Street, San Francisco, California, executive secretary.

Feb. 3-5. **University of Nebraska,** veterinarians' conference on swine repopulation. University of Nebraska, Lincoln, Nebraska. For program and registration form, write, Dr. E. Crosby Howe, Department of Animal Pathology & Hygiene, University of Nebraska, Lincoln 3, Nebraska.

Feb. 4-6. **Pacific Northwest Veterinary Associations' Conference.** Benson Hotel, Portland, Oregon. Dr. O. H. Muth, secretary-treasurer.

Feb. 4-6. **American Animal Hospital Association, Region 2,** annual meeting. Robert Meyer Hotel, Jacksonville, Florida. Dr. R. P. Knowles, 2101 N.W. 25th Ave., Miami 42, Florida, chairman.

Feb. 15-17. **Colorado State University,** 21st annual conference for veterinarians. College of Veterinary Medicine, Fort Collins, Colorado. (A short course in bull evaluation will be held Saturday, February 13, and Sunday morning, February 14.) Dr. O. R. Adams, Department of Veterinary Clinics and Surgery, Fort Collins, Colorado, program chairman.

Feb. 21-23. **The Missouri Veterinary Medical Association,** 68th annual meeting. Hotel President, Kansas City, Missouri. Dr. Paul L. Spencer, P.O. Box 283, Jefferson City, Missouri, secretary.

Jun. 27-29. **California Veterinary Medical Association,** 72nd annual convention. Jack Tar Hotel, San Francisco. Ken Humphreys, 3004 16th Street, Rooms 301-2, San Francisco 3, California, executive secretary.

Respiratory Diseases of Swine

W. L. BAKER, JR., B.S., D.V.M.

Kennett, Missouri

FOR YEARS this practitioner has had more difficulty combating respiratory ailments than any other disease of swine. Pasteurella or mixed bacterins proved relatively ineffective. This has been due, perhaps, to the fact that they were not administered early enough.

For the past three years this practitioner has cultured blood and tissue on herd respiratory problems whenever an autopsy was performed. After growth was obtained the culture was sent to the S. E. Massengill Co., Bristol, Tennessee, for identification and sensitivity pattern. The cultures were obtained from swine weighing 40 to 200 lb. Most herds had been moved through a community feeder pig sale and transported from ten to 200 miles. Some were being fed and confined on concrete whereas others were maintained on conventional pastures.

Organisms Found on Culture

Although not a comprehensive study, it is interesting to note that the Pasteurella organism was not encountered in cases covered by this report.

1. Streptococcus organisms were recovered 21 times. Distribution is as follows:

S. equisimilis	8
S. fecalis	6
S. zooepidemicus	3
S. group C	2
S. group A	1

2. *Escherichia coli* was recovered four times (serotype 0-111).

3. *Staphylococcus albus* was recovered once (non-pigmented, B hemolytic, coagulase positive).

4. *Corynebacterium pyogenes* organism was recovered twice.

5. *Klebsiella pneumoniae* was recovered twice.

6. *Staph. aureus* was recovered three times. One of these was secondary to cholera and erysipelas.

7. *Listeria monocytogene* was recovered once—in the "R" form.

The sensitivity pattern of *Streptococcus fecalis* showed it to be very sensitive to chloromycetin, neomycin, and neomycin and polymyxin B; slightly sensitive to Terramycin and tetracycline; sensitive to penicillin and bacitracin.

Fecalis was resistant to streptomycin.

Viral pneumonia, involving the apical and cardiac lobes, was encountered twice only upon autopsy. Swine influenza was not encountered.

Predisposing Causes

1. Lungworms.
2. Ascarids.
3. Lack of adequate sleeping space.
4. Poor sanitation.
5. Poor diet, particularly one lacking in vitamin A.
6. Cold damp floor, and lack of proper bedding.
7. Draft and poor ventilation.
8. Lack of fog nozzles in summer.

Treatment

1. Eliminate as many of the predisposing causes as possible under existing conditions.
2. Isolate hogs running temperatures over 105 F.
3. Handle swine being treated as little as possible.
4. Administer injections with 15 gauge, 1½ in. needles, in neck musculature while hogs are lying down.
5. Use penicillin and streptomycin in acute cases, or when sensitivity pattern shows resistant organisms, use Daribiotic Injectable (S. E. Massengill).
6. Put entire herd on sulfathiazole or a triple sulfa in drinking water for four to six days. This has worked much better than a broad spectrum antibiotic in feed since many of the hogs showing a high temperature will not eat but will take medication in water.
7. Keep chronic cases isolated, and after three to four weeks destroy the chronic "lunger."
8. After the herd has been on a sulfa in the drinking water four to six days, put on a guaiacol-iodide mixture in drinking water for five to six days.
9. Sanitation, elimination of lungworms, and intestinal parasites are vital in the prevention of the various pneumonias of swine. Dictycide (Fort Dodge Laboratories) has given good results in elimination of lungworms and helped in many chronic coughing herds.

Conclusion

These cultures were made from herds involving several thousand hogs over a period of three years in one practice area. If nothing else, perhaps, it will point out that much work needs to be done in this field and that the problem varies in different practice areas. Undoubtedly management plays a large part in prevention of respiratory difficulties, but a re-evaluation of our present prophylactic immunizing agents would also be in order. Confinement feeding on concrete will intensify this problem, and the swine practitioner would welcome any addition to his prophylactic armamentarium.

Organic Acaricides

Sweatman and Pullin in the December, 1958 issue of the *Canadian Journal of Comparative Medicine and Veterinary Science* discuss the results in the handling of *Chorioptes bovis* and their larva infestation by means of organic acaricides. The writers mention that this mite is not, as previously asserted, host specific since it is intertransmissible between horses, cattle, sheep and goats. Infestation is not usually demonstrated by profound clinical manifestations, but if suspected, the mite should be looked for on its favored sites such as the region of the feet, the buttocks of cattle and also the inguinal region of sheep.

It is indicated the old established lime-and-sulphur, as well as nicotine sulphate solutions, are effective against the mite through not against the larva because of their very limited residual effectiveness.

Of the organic chemicals tested, lindane, either in the form of a wettable powder or as an emulsion, was determined to be most effective as an acaricide (one application in 0.056% lindane strength with the mite in motile form but requiring two applications for a quiescent stage). It also was larvicidal in two applications used at a ten-day interval. Since many of these organic compounds are in a measure eliminated in the milk when used on lactating dairy cattle, this factor must not be entirely disregarded, but the writers still maintain that lindane appears to be the acaricide of choice for the treatment of chorioptic mange. The point is stressed that the summer months are the best time to treat to eradicate the infestation because during this period of the year the mite population is considerably reduced.

Many therapeutic combinations have been tried for bovine retained placenta. Controlled studies are scarce and comparison of results difficult. This clinical report emphasizes the effects of treatment on future fertility, specific criteria against which other reported treatments can be compared.

The Retained Placenta Syndrome in Cattle

Treatment With a Nitrofurazone — Urea Combination

T. A. RUDE, V.M.D.

Stoughton, Wisconsin

POSTPARTUM RETENTION of fetal membranes is a relatively common occurrence in animals, particularly in cattle. The first goal of treatment is removal of the retained mass. This is most commonly done manually. However, the use of oxytocic agents and estrogens, alone, to stimulate uterine contractions or the supplementation of the activity of these substances with manual manipulation may be attempted. The most common complication is undoubtedly bacterial infection, and hence endometritis and pyometra with the sequelae of hypogalactia, mastitis, toxemia, septicemia and impaired fertility.

Of all the consequences of retained placenta, impairment of fertility is the most serious, particularly because of its economic importance. Raker[1] observed that following placental retention, reproduction is usually affected and future breeding is often impaired. Gildow and Thorning[2] reported that subsequent breeding was not so efficient as that prior to infection, infertility being found in 40% of their cases. Olds[3] cited a report by Woelffer showing that 78% of 75 untreated cows were unable to conceive.

Despite antibacterial therapy with sulfonamides and antibiotics, retained placenta continues to be a therapeutic problem, presumably because of bacterial resistance. The use of intrauterine antiseptics, i.e. iodine (Lugol's solution) or tyrothricin in 29 cows resulted in a 62% conception rate, while 38% remained sterile.[4] In a comparative study, Roberts[5] obtained conception rates of only 39% of 101 cows following postpartum intrauterine administration of Ringer's solution and dextrose; 51% of 133 cows after iodine (Lugol's) solution; 38% of 45 cows after tyrothricin solution; and 46% of 160 cows after combinations of penicillin-streptomycin or penicillin-streptomycin-sulfonamides. This would demonstrate that even with modern antibacterial drugs, infertility of cows is high, as a consequence of previous placental retention and uterine infection.

Since 1955, a drug has been developed and tested as a therapeutic and prophylactic agent in bovine uterine infections. This

drug, Furea Veterinary* (Eaton Laboratories) combines the antibacterial activity of nitrofurazone and the proteolytic effect of urea to produce dissolution of necrotic tissue.

Nitrofurazone, a nitrofuran with broad antibacterial spectrum, does not induce development of bacterial resistance; is suitable for topical use, harmless to mammalian tissues and has shown no adverse effect on healing.[6] It is effective in the presence of pus, serum or organic detritus.[7] It has been used extensively for topical antibacterial therapy in human medicine.[8] In veterinary medicine, particularly in bovine genital infections, nitrofurazone has been used effectively as vaginal suppositories[8] or intrauterine infusion,[9,10] in vaginitis[11] and postservice.[9,10]

The inclusion of urea in the formulation of Furea relates to its proteolytic and topical-debriding action.[12] It has been proved to be nontoxic to mammalian tissues.[13] Topical antibacterial preparations combining sulfonamides and urea have been used. The antibacterial activity of sulfonamides is significantly lessened by blood, pus, organic detritus and para-amino benzoic acid.

In clinical trials on 150 cows with retained placenta, the intrauterine insertion of Furea boluses effectively prevented endometritis and infertility.[14] Several unpublished reports confirm that the use of this drug produced rapid cessation of malodor, discharge and other signs of infection.[14,15] In some cases, treatment facilitated either natural detachment of the placenta or its manual removal.[15]

The present study was conducted to evaluate further the influence of Furea boluses, inserted into the uteri of cows with retained placenta, on bovine reproduction in terms of breeding percentage, service rate per cow, conception on first service, and birth of live calves.

Material and Methods

In this study, 30 cows with retained placenta were selected at random and treated once with three to five Furea boluses inserted manually into the uterus.

Results

The results of treatment are as follows:

Breeding Percentage. After removal of the placenta and treatment with Furea, 28 (93%) of the 30 treated cows became pregnant. The two remaining cows, despite three to five breeding services, did not conceive.

Breeding Service Rate. The 30 cows in this series were given a total of 55 breeding services, both artificial (22 cows) and natural (eight cows) insemination—an overall average of 1.83 services per cow and 1.68 services per cow which subsequently conceived.

Conception Rate on First Service. Of these 30 cows, 18 (60%) conceived after the first breeding.

Birth of Live Calves. At subsequent parturition, 25 (83%) of the 30 cows gave birth to full term live calves, with no cases of abortion; one calf died after delivery, probably due to dystocia. Of five remaining cows, three were sold by the owners prior to calving because of advanced age or previous history of unrelated disease (parturient paresis, chronic bronchitis, etc.), and two were unable to conceive.

Other Benefits of Therapy. Postpartum uterine and vaginal discharge was minimal or absent and did not persist; malodor was reduced remarkably and disappeared promptly. No undesirable reactions were observed.

Conclusions

Fertility impairment as the most serious sequela of retained placenta with uterine infection in cows is discussed. The intrauterine use of Furea Veterinary (Furacin and urea boluses) in 30 cows with placental retention resulted in a 93% conception rate inasmuch as 28 cows became pregnant, 18 (60%) of these on the first breeding service. Average breeding services rate was 1.83 per cow overall and 1.68 per cow which subsequently conceived. Of the 30 cows, 25 (83%) gave birth to full term live calves, while five could not be followed up.

The use of this drug was followed by a

*Furea® Veterinary is a bolus containing 0.12 gm. Furacin, brand of nitrofurazone N.F., and 12.4 gm. urea, Eaton Laboratories, Norwich, N. Y.

reduction or disappearance of uterovaginal discharge, prompt disappearance of malodor, and absence of any other sign of uterine infection. No undesirable reactions attributable to the treatment were observed.

The high conception rate achieved after use of Furea (93%) appears significant compared to reports on other medication and suggests further evaluation of this drug for prevention of infertility resulting from retained placenta.

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Bacteriological Testing For Mastitis

The grand old institution of the glass petri dish now has serious competition from a plastic counterpart in examinations for mastitis, according to Dr. D. T. Berman, Veterinary Science Department, University of Wisconsin.

These crystalline polystyrene dishes are packed sterile in sealed polyethylene bags. When purchased in lots of 500, the cost of quarter sampling is about 18 cents per cow. Plastic petri dishes are available from laboratory supply houses.

Another problem, of course, is getting the medium prepared and into the petri dish. If one buys blood agar base from Difco Laboratories, this increases the cost 1¾ cents per plate without the blood added. Blood agar in dehydrated form is available and equally satisfactory.

Case Laboratories sell the prepared blood agar base already made up in sterile 200 ml. amounts in screw cap bottles. Preparation consists of putting the bottle containing blood agar base into boiling water until it melts, letting it cool enough to add blood and pour the plates. Using these media the cost is ½ cent for medium per petri dish, or 1 cent per cow.

By using plastic petri dishes and sterile prepared medium without autoclaves or pressure cookers, it is possible to bring the cost for testing down to 19 cents per cow. After bacteriological results have been obtained, the petri dish can be burned in the incinerator.

Some of the mechanical operations can be eliminated at a higher cost if the testing veterinarian is willing to use prepared blood agar plates available from pharmaceutical laboratories.

The labor involved in adding blood to the melted agar plates and pouring the plates is relatively small. Cow blood is available and the apparatus involved in preparing bottles to collect 500 ml. or 250 ml. lots of citrated blood is simple to prepare. There are few grounds for suggesting that veterinarians cannot do bacteriological work themselves.

DIAGNOSIS of Abomasal Displacement

THE SYMPTOMS and differential diagnosis of displacement of the abomasum have been well described by Moore *et al.*[1,2] Those not familiar with the symptoms of this condition are referred to these articles.

Diagnosis of the condition is based on one of four technics. These are (1) clinical symptoms, (2) auscultation, (3) trocarization, (4) paracentesis and pH determination of the product (Liptak test).

Clinical Symptoms

Detailed description of the symptoms is beyond the scope of this article but, briefly, they are anorexia, emaciation, decreased milk flow, possibly slight puffiness in the left paralumbar fossa, slight to mild ketonuria, normal temperature, total and differential white blood cell counts and a "roached back" stance.

Auscultation

Hansen *et al.*[3] have indicated that by auscultation at "the approximate juncture of the middle and upper thirds of the flank and the anterior border of the last rib . . . a single or a short series of tympanic high-pitched sounds, resembling the so-called cecal ping in the horse" can be heard. These sounds come at intervals of five minutes or longer and although their intensity may vary, their pitch will be the same. Steere and Nealy[4] have described this sound as a "ping" or abomasal "tinkle." They describe the sound as "much like silver striking gently against crystal."

Trocarization

These latter authors have described a technic of trocarization whereby a trocar is passed through the abdominal wall just ventral to the lumbar shelf and posterior to the last rib. Care is taken to avoid penetrating the rumen or abomasum. After withdrawal of the trocar from the cannula, an otoscope light is passed through the cannula for visual examination for the presence of the abomasum on the left side.

Paracentesis and pH determination (Liptak Test)

Probably the simplest method of confirming the diagnosis of displaced abomasum is paracentesis of the area of the displaced abomasum and use of pH test strips (Liptak test). The puncture is made posterior to the ninth, tenth or eleventh rib in the lower third of the abdominal wall on the left side. Butterfield[5] has recommended a 4 in. 14 gauge needle and a 10 ml. syringe. A portion of fluid is removed and subjected to a pH test using nitrazine paper (Squibb).[6] The pH of the rumen content varies from 6.0 to 7.6 according to Dukes,[7] whereas the pH of the abomasal contents varies from 2 to 4.1. These differences are readily detected by the color reaction on the nitrazine paper. A color chart is furnished with the paper which indicates the color to expect for the various pH ranges. The more acid reactions give a yellow color, whereas those

Practitioner's laboratory

W. L. SIPPEL, V.M.D., Ph.D.
Florida Livestock Board
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toward neutrality give a green to blue reaction. Other hydrogen-ion test papers of appropriate ranges can also be used.

Although the pH of the various portions of the stomachs may be altered by the abnormal position, the changes are still relatively constant in that the abomasum is considerably more acid than the rumen content. This simple exploratory puncture will provide a definite answer to the question and obviate the necessity for an exploratory laparotomy. A single negative test should be repeated in other likely spots in the lower abdomen.

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Pony Lameness

Lameness and foot pathology is a rather common ailment of ponies. All too often poor management practices can be the cause of laminitis. Acute laminitis is not seen as much by the practitioner as the chronic type. This is not because it does not exist, but probably because the owners do not notice it or will not seek assistance until the acute phase is over.

Chronic laminitis and its accompanying concentric hoof rings, overgrown horn wall, seedy toe, dropped sole and malformed feet is most difficult to treat. Many of these so-called sled-runner feet can be corrected by sawing them off with a hand saw. As for dropped sole, there is little that can be done outside of allowing the wall to grow down as far as possible, and in the more valuable animal, shoeing with a concave boiler plate shoe. Many times a radiograph will show the forward rotation of the coffin bone which frequently accompanies a dropped sole. If such a rotation has occurred, prognosis should be very guarded to poor. Most of these individuals can not be saved even for brood mares.—*Paul E. Hoffman, D.V.M., Georgia Veterinarian, January - February 1959.*

Milk Test for Ketones

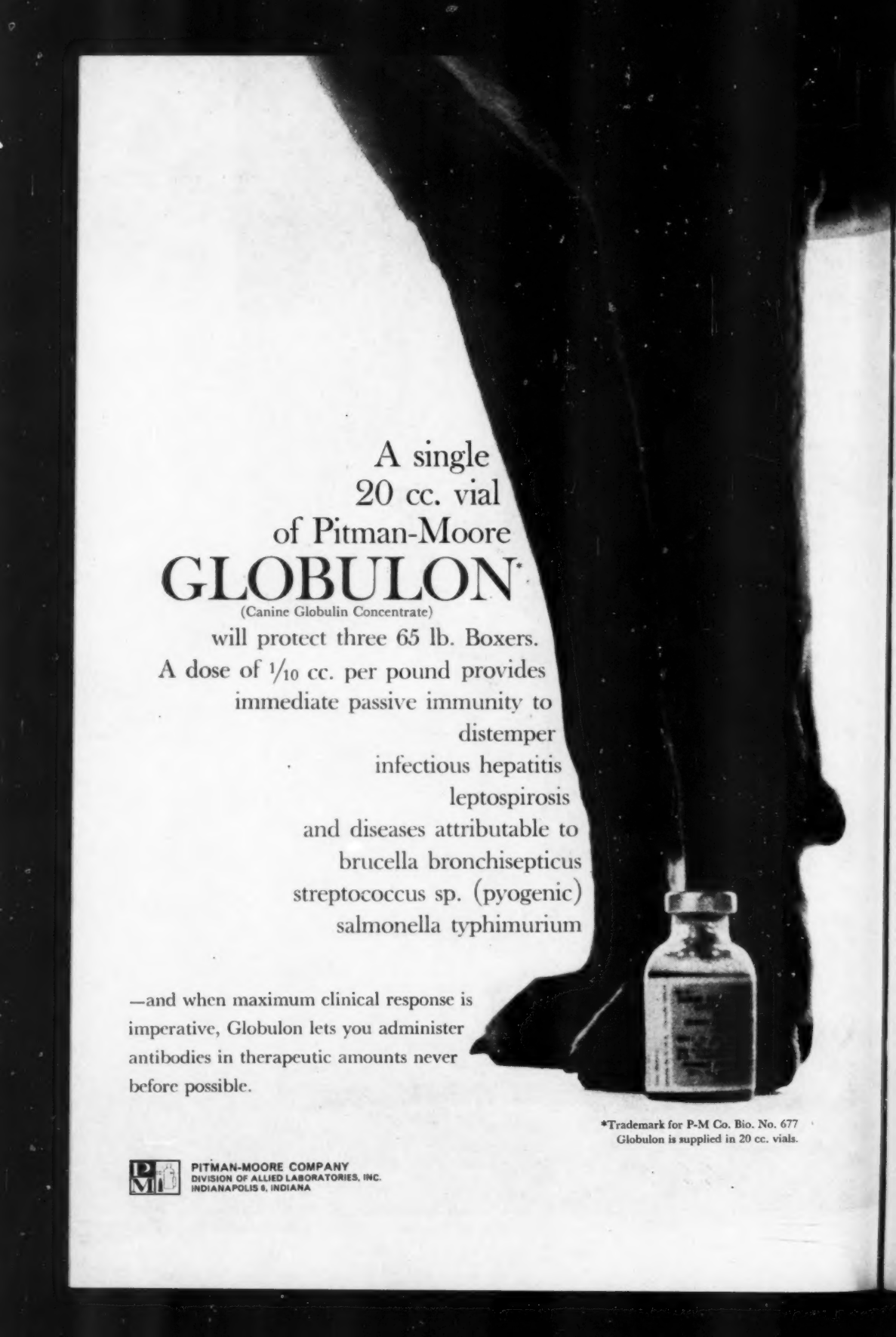
A milk test for the presence of ketones that is reasonably accurate and eliminates some of the fault of the Ross urine test has been developed by University of Wisconsin workers.

The urine test at times responds positively when ketosis is not present. The milk test uses a powder consisting of carbonate of soda, sulphate of ammonia, and nitroprusside of soda (Denco powder). A dome shaped, dime sized quantity of this white powder has two or three drops of milk placed in its center. If the powder remains white, the test is negative; if it turns a slight pink it is a trace reaction, and a darker pink is interpreted as "mildly positive" so that treatment is a good step. In those reactions where the powder turns purple the animal has ketosis and treatment should at once be instituted.

The researchers indicate that a weekly test of this nature would result in the detection of early or incipient cases, and that by prompt veterinary treament heavy economical loss can be avoided.

The persistence of the ketosis problem suggests the value of this diagnostic aid.

SMALL ANIMAL PRACTICE



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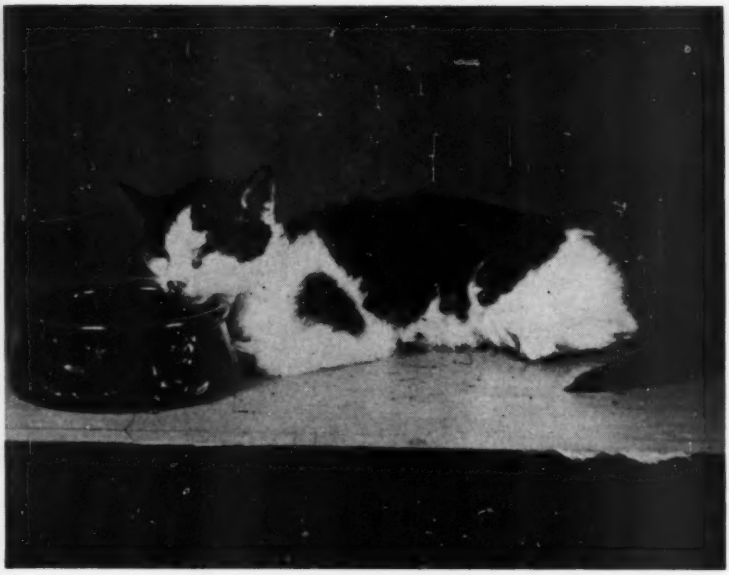

Fig. 2. Attitude in which the cat hovers over a dish of water, but is not able to drink, is caused by stomatitis and gastritis.

II-Viral Infections

CAT PRACTICE

C. E. DeCAMP, D.V.M.

Scarsdale, New York

TISSUE CULTURE technics have expanded knowledge of feline viruses considerably. A number of viruses associated with respiratory infections have been isolated from field cases, and these have complicated to some extent the diagnosis and treatment of feline pneumonitis.

Panleukopenia (feline distemper, feline enteritis) is a widespread, highly contagious disease with a high mortality rate. It is most serious in young cats, and is of considerable economic importance in rural areas where healthy cats are very effective in the control of rodents. An estimate by the USDA indicates that on some farms a single cat can prevent property losses from rodents amounting to $50 or more in any year.

Virus is present in the blood during the incubation period which is usually two to six days, but may be as long as nine days in some cases, and may be spread by cats exhibiting clinical signs. It is believed that a recovered animal may be a carrier. The virus is spread by direct contact with an infected cat; by contaminated food and water dishes, bedding, and clothing; by urine, feces and vomition and by infected nasal and ocular discharges. It may also be

carried by lice, fleas, and other blood sucking parasites.

The temperature curve is diphasic with an initial rise of about 24 hours duration, and the second rise developing about 48 hours later. The temperature in both phases is about 104 to 106 F. Severe dehydration develops at the second stage of fever and the patient exhibits a characteristic posture, with the head resting on its abdomen, paws, or in the water dish. Vomiting also may occur at this time, and diarrhea is present in many. Prostration develops rapidly. Most cats are not seen by the veterinarian until after the second temperature rise, at which time the prognosis is not good. The characteristic attitude, in which the cat hovers over a dish of water, but is not able to drink, is caused by stomatitis and gastritis, (figure 2). The oral and gastric mucosa are the first tissues to be invaded by the virus. Vomiting of bile-tinged mucus is common, while coryza and lacrimation are not. Since the clinical picture may simulate poisoning, feline enteritis must be considered in evaluating the possibility of accidental or criminal poisoning.[10]

Diagnosis

Diagnostic considerations include a history of possible contact, reduced appetite or complete anorexia, lassitude for one or two days, vomiting and diarrhea two to three days after the onset, characteristic attitude over the water dish, and white blood cell count. The total and differential counts are important in differential diagnosis: the normal white cell count of the cat is 15,900; in panleukopenia the neutrophils are immature and the white cell count ranges from 0 to 3,000; in pneumonitis the total white cell count is 5,000 or more, with no immature neutrophils, and in streptococcic infection there is a leukocytosis involving the neutrophils.

Treatment is of little value since most patients have an advanced, irreversible viremia when symptoms become obvious. Normal or hyperimmune feline serum in large doses, fluid therapy with 5% dextrose solution, B-complex vitamins, and blood transfusions may be helpful. Transfusions of 20 to 40 cc. of blood may be given in the radial vein. Antibiotics probably have little, if any, effect on the virus, but may combat secondary infections which otherwise usually kill the patient.

Fig. 3. Feline pneumonitis. Initial symptoms consist of mild sneezing. Sneezing worsens, and is followed by anorexia, weight loss, general unthriftiness. Extensive drooling of saliva is often present.

Although mortality usually ranges from 60 to 90%, patients that recover do so rapidly, with prompt return to a normal blood picture. When damage from dehydration and toxic destructive effects on the liver and kidneys is not too great, the patient will be normal upon recovery and will have an active immunity.

Prevention is the best way to control this disease. Killed tissue vaccine, in young cats, two doses of 2 cc., one week apart, produces good resistance.

Feline Pneumonitis

Feline pneumonitis is caused by a virus of the psittacosis-lympho-granuloma group. It is a highly contagious and somewhat chronic infection, persisting for about a month in untreated cases.[11] If uncomplicated, mortality may reach 30% in very young cats, and effects are very debilitating. The virus may be carried in the body and activated only when the cat is subjected to stress.

The initial symptoms consist of only mild sneezing. As the condition progresses sneez-

ing becomes more severe, followed by anorexia, weight loss, and general unthriftiness. Extensive drooling of saliva is often present, (figure 3). As the infection progresses into the sinuses, and even the inner ear, ability to maintain balance and to walk may be impaired. Pneumonia also occurs, but usually responds to treatment if the patient is not too debilitated.

The psittacoid viruses in general are susceptible to antibiotics and sulfonamides. However, the feline pneumonitis agent is not susceptible to sulfonamides or chloromycetin, though oxytetracycline and chlortetracycline have been reported to be effective. These agents will reduce sneezing and eliminate the virus in many cases. Novahistine (Pitman-Moore) administered orally may relieve nasal congestion and sneezing and thus aid in preventing the dissemination of the infection. Providing warmth and feeding through a stomach tube passed by the nasal route are both useful in treatment.

A new live-virus vaccine (Feline Pneumonitis Vaccine—Pitman-Moore) modified by propagation in eggs shows promise as an efficient immunizing agent. The immunity may be only of six months duration, but should be sufficient to control epizootics in kennels and hospitals. There also is some evidence that the vaccine may be effective therapeutically. Sanitary measures including isolation, assignment of personnel, and cleaning and disinfection of quarters, utensils and equipment are also important in the control of this disease.

Cat Scratch Fever in Man

Cat scratch fever results from a scratch or other injury by a cat.[12] A physician suspecting this condition in a patient may seek information from the veterinarian. A general understanding of the disease by the veterinarian makes it possible for him to provide valuable information, and to protect the cat from unnecessary destruction.

The cause of cat scratch fever is unknown, although it is presumed to be a member of the psittacosis-lymphogranuloma group of viruses. The disease may occur after even a single superficial scratch which draws blood, and so mild that it is considered unimportant.

Usually a clear vesicle forms at the injured site four to five days after the injury, and progresses into a small abcess in about two weeks which is sterile on bacterial culture. Lymph nodes adjacent to the injured area are inflammed and swollen, and fever persists for about a week. Severe malaise continues for a week or more. Symptomatic treatment is all that is known.

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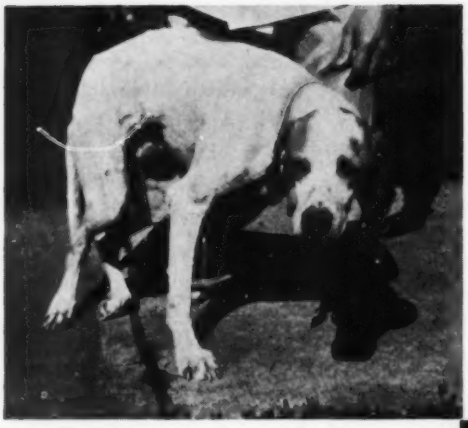
Nomograph

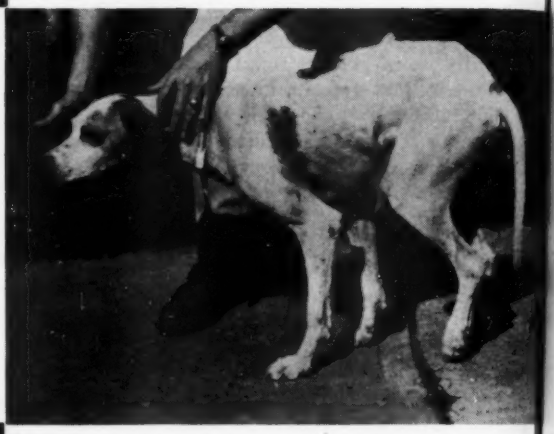
The *Maryland Veterinarian* of June 1959 reports practitioners' reactions to the nomograph developed by the Veterinary Virus Research Institute in the New York State Veterinary College at Cornell University. In general the serum-neutralizing antibody titer of the dam against canine distemper virus is first determined in that the age at which offspring can be immunized may be determined. The nomograph is an alignment chart.

Puppies are passively immune so long as they are nursing their immune mother. Practitioner reaction was that the use of the nomograph was of definite value in determining the exact time to start the distemper immunization of puppies, but "impractical for daily use on the average puppy." Almost all practitioners depend to a large extent on hospital records and case histories as guides in their canine distemper immunizing program. Another factor that must be given consideration in following the Baker method is that it constitutes an added cost, and therefore constitutes an economic problem with many clients.—*R. R. Dykstra, D.V.M.*

A CASE REPORT

AORTIC THROMBOSIS



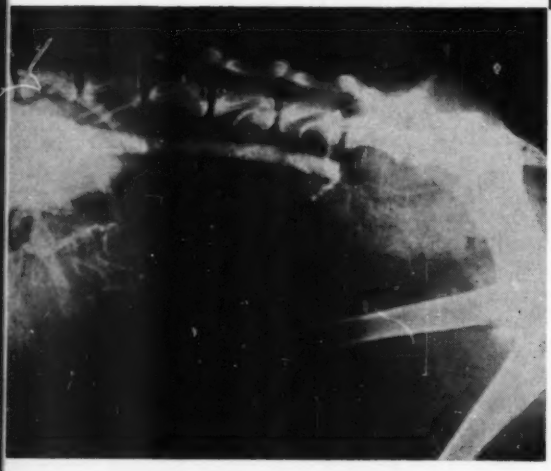


ABOVE AND RIGHT

Figs. 1, 2. Partial paraplegia or posterior paresis. The dog is bearing most of his weight on his front legs.

BELOW

Fig. 3. A lateral angiogram taken 7½ seconds after injecting 20 cc. of Urokon into the cephalic vein. Note the complete blockage.



B. F. HOERLEIN, D.V.M., Ph.D.
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Alabama Polytechnic Institute
Auburn, Alabama

A MALE POINTER, 3½ years of age, was admitted to this clinic on April 4, 1959. According to the history, the dog had been worked hard during the past quail season. After a week's rest the dog collapsed in the field on a hunt and exhibited great pain in the hind legs. Since this time there had been no improvement.

Review of the Problem

An occlusion of a major artery is usually the result of one of the following:

1. Arterial embolism.
2. Arterial thrombosis, (a) traumatic or (b) non-traumatic.
3. Infectious arterial occlusion.
4. Occlusion due to cold and angiospastic disease.

An embolus is usually defined as any foreign or abnormal particle circulating in the blood. An embolism is a sudden closing of an artery, which was previously patent, by the lodgment of a clot or embolus. This particle usually has arisen in another part of the circulatory system — e.g., a vegetative lesion on the mitral valve and in auricular fibrillation.

A thrombus is defined as a clot of blood formed within the heart or blood vessels, due usually to a slowing of circulation or to alteration of the blood or vessel walls.

A traumatic arterial thrombosis takes place in a previously normal artery. Such trauma may be directly to the vessel as a result of a laceration or contusion. Trauma to surrounding tissue may produce thrombosis because of pressure on the vessel from tissue damage. In either case the endothelial wall may be bruised at the time of injury, intimal damage results, and a thrombus occurs.

Non-traumatic thrombosis usually takes place in diseased vessels. Occasionally a trauma so mild as to be irrelevant in a normal vessel may be the exciting cause of a thrombus formation in a diseased vessel. Non-traumatic thrombosis of an artery may be caused by:

1. Infections invading the arterial system.
2. Blood dyscrasias.
3. Congestive heart failure or cardiac insufficiency resulting in slowing of the blood stream and an increased coagulability of blood as well as other factors inciting retarded blood flow such as shock, hemorrhage, hypotension, orthopedic devices, and extreme inactivity.
4. Conditions causing an increased cellular content of circulating blood such as dehydration and malignancy.

It is said that 20 to 40% of all acute arterial closures are probably due to arterial clotting. An arterial bifurcation is a natural site for thrombosis since at these points the stream of blood is diverted and the speed is slowed by narrowing of distal vessels. Peripheral resistance is increased and there is some trauma to the arterial wall. The arteritis resulting then may initiate the clot formation.

Infectious arterial occlusion has been mentioned in non-traumatic thrombosis. In man the hemolytic streptococci and clostridial organisms are the most frequent causes. Many other diseases cause reactions in body tissues such as edema and venous stasis, and these may contribute to the occlusion of a vessel.

Occlusion due to cold may cause a "slowdown" in blood flow, sludged blood, and thrombosis.

Symptoms of embolism and thrombosis of a large vessel such as the aorta are similar. Embolism usually occurs with mitral valvular disease or auricular fibrillation whereas thrombosis usually is the result of vascular disease and/or trauma. Symptoms of coldness of parts, pain, and no pulse are common to both. In man embolism usually occurs in the 20 to 40 year age group while thrombosis occurs in subjects over 45 years of age.

Symptoms

The general examination of the dog revealed that both hind legs were very painful and partially paralyzed. Both legs were cold but showed no signs of edema. The left leg showed marked pain in the coxofemoral area. The temperature was 103.8 F. and the pulse was 136 by direct cardiac palpation. However, the diagnostic symptom was that of a bilateral absence of the femoral pulse. Every other phase of physical examination was normal.

The laboratory examination revealed the following:

RBC—5,260,000.

WBC—26,950.

Differential—N—82 (51, non-seg); L—8; M—9; B—0; E—1.

Hemoglobin—8 gm./100 cc. blood. Packed Cell Volume—28%. Sed Rate—34 mm/30 min., 54 mm/60 min. BUN—14.9 mg. %. Dipetalonema microfilariae were seen in blood smears.

Fig. 4. An angiogram in the ventrodorsal position, 10 seconds after injecting 15 cc. Urokon in the jugular vein. The aorta is superimposed on the vertebral column.

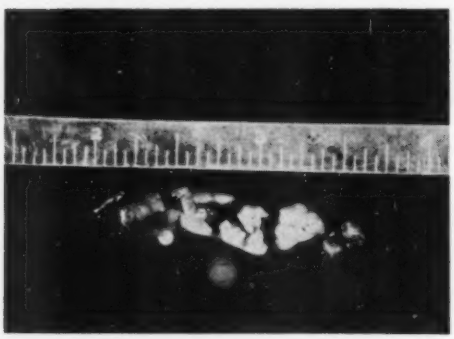


Fig. 5. The thrombus removed at surgery from the terminal aorta.

Diagnosis

An abdominal radiograph revealed no abnormality. Thus the clinical observations of paraplegia, the absence of femoral pulse, and coldness of the hind legs were good evidence of a cardiovascular lesion — possibly an aortic thrombus. Therefore angiocardiography was performed.

Under general anesthesia, the contrast medium (20 cc. of sodium acetrizoate [Urokon — Mallinckrodt Chemical] 70%) was injected into the cephalic vein by means of a syringe and 16 gauge intravenous needle. Six seconds after injection a series of radiographs were made in a lateral recumbent position at one-half second intervals. The medium progressed just beyond the emergence of the circumflex iliac arteries. With the dog in the dorsal recumbent position, 15 cc. of Urokon were injected into the jugular vein, and after four seconds radiographs were made at one-half second intervals. This view confirmed the findings of the former series. The diagnosis of an aortic obstruction was then firmly established (fig. 3, 4).

Treatment

Surgical removal of the thrombus was attempted. A left posterior paramedian incision was made in the abdomen. The terminal aorta was observed to be without a pulsation and was noncompressible. Two sets of ligatures were applied to the aorta by means of umbilical tapes, rubber tubing, and forceps.

An incision 2½ in. long was made into the terminal aortic lumen. A coagulated mass of blood measuring 2 in. in length was

removed. The external iliac and femoral arteries were then catheterized and probed. These arteries were also obstructed with clotted blood. An incision was made in each femoral artery in the proximal medial thigh area. The right femoral artery was cleaned out and sutured. The left femoral remained plugged after all efforts to remove its thrombus. The aortic incision was then sutured with 6-0 vascular silk and blood flow was established by removing the aortic ligatures. The abdominal closure was routinely performed.

The dog's left leg showed signs of gangrene on the third postoperative day. The dog was then destroyed.

Necropsy

The operative area in the aorta revealed that a soft clot was beginning to form. The left external iliac and femoral artery showed multiple thrombi. The right vessels showed open lumens.

The heart and general vascular systems showed no abnormalities. No other findings seemed to clarify the probable cause of the condition. The clot removed at surgery was studied histologically and fibrin with a laminated appearance characteristic of a thrombus was demonstrated. Scattered lymphocytes and erythrocytes were also seen.*

Discussion

It is felt that this case merits reporting because of a "theoretically described" but a "seldom seen" cause for paraplegia in a dog. Of course the clinical symptoms were characteristic of a cardiovascular condition since neurogenic causes of paraplegia do not reveal an absence of the femoral pulse. It is felt that serial angiography will soon become a more *routine* diagnostic procedure, and the results of this case prove the point.

The surgery could have been successful if the case had been available sooner; that is, before complete occlusion of the femoral arteries resulted. The clinical use of vascular grafts, transplants, and artificial vessels needs evaluation in the dog.

The cause of the condition remains a mystery. No cardiac or vascular disease was seen on necropsy. It is possible that sudden exercise after a "lay-off" period during a strenuous hunting season may have had an adverse effect on circulation — a "sludged-blood" phenomenon. Of course, the bifurcation of the aorta would make a point of lower resistance for thrombus formation.

Summary

A case of partial paraplegia was observed in a dog from an aortic occlusion. It is felt that this is one of the first such cases diagnosed clinically by the use of angiography. Surgery could have terminated in a recovery following prompt presentation of the affected individual by the owner. The case demonstrates a vascular cause of paraplegia in the dog.

Acknowledgments

This case report was made possible by cooperation of the Scott Research Fund in the Department named below. This case was referred by Dr. C. W. Evans of Columbus, Georgia. It has been presented as paper no. 843.

REFERENCE

1. Pratt, G. H., Cardiovascular Surgery, Lea & Febiger, Philadelphia, 1954.

*Necropsy examination was performed by Dr. D. F. Johnson, Department of Pathology and Parasitology, Alabama Polytechnic Institute, Auburn, Alabama.

Food for the Skunk

In the wild state, the skunk enjoys a variety of foods, and will eat anything edible it can find. Insects, fruit, grain, and small mammals make up a great portion of the wild skunk's diet. In captivity, dog food with meat make up a basic diet, with table scraps added when available. Vitamin supplements and some fat should be added to this diet. Water should be provided at all times.—*L. E. Fisher, D.V.M.*

Here each month are published ideas, suggestions and comments picked up by VM reporters.

Small Animal Clinic

Canine Cervical Esophagus

A long segment of canine cervical esophagus can be successfully replaced with a nylon tube, reinforced by a flap of subcutaneous fascia and muscle from the cervical skin.

Nylon tubing, 1.9 cm. in diameter, is cut 2 cm. longer than the esophageal defect. Mucosa, separated from the muscular layer of each esophageal stump to a depth of approximately 2 cm., is fastened tightly to the inner wall of the prosthesis, muscularis to the outer wall. The flap of platysma, still attached to the lower cervical structures, is loosely fixed to the prevertebral fascia, wrapped around the tubing, sutured to the esophageal muscularis at either end of the defect, and closed by suturing back upon itself.

The prosthesis is braided nylon arterial graft, crimped to allow bending to a 90 degree angle without narrowing the lumen. No strictures or diverticula formed in any dogs sacrificed from four to ten weeks postoperatively.—*Plast. & Reconstruct. Surg., 23:36, 1959.*

Feeding the Monkey

I believe the saddest dietary deficiencies I have seen over the years have been in the pet monkeys. These are usually the capuchin, squirrel, spider, and woolly species. Ricketts, posterior paresis, alopecia, and other symptoms are all too evident. Many owners express astonishment that the monkey should stand on its hind legs instead of scooting or dragging along. They think this is normal because some of their pets never did walk normally.

Monkeys have been fed every conceivable type of food, most of which agree with them from a digestion standpoint. There are some commercial mixtures now out that include vitamin C in the biscuit. Fruit, vegetables, cooked potatoes, bread, milk, cooked cereal, and meat have all been fed to monkeys. I believe ultra-violet lights are important and vitamin supplements should be used daily. Mineral supplements can be added also. Fresh water should always be available, and changed three to four times a day.—*L. E. Fisher, D.V.M.*

Epoxy Resins for Splints

Ideal material for making splints should be easy to mold directly; be strong, light, waterproof, chemically inert, and washable; and bind firmly to metal. Special skills and complicated apparatus should not be required.

Resin LW.2, a pigmented epoxy resin, fulfills these needs. The resin is supplied as a viscous paste and cures after being mixed with triethylene tetramine and baked for half an hour.

The thinnest possible cast is made from plaster of paris bandage and applied directly to the part. Three thicknesses of bandage

are usually sufficient to hold the shape. While the cast is drying, loose plaster is removed with a dry nail brush.

The cast is thoroughly impregnated with the resin mixture, using a stiff paintbrush. One or two layers of glass fiber, cut to shape and also impregnated with resin, are applied to give strength. Necessary metal fixtures are slotted between the layers of glass fiber and held with a cotton stitch during setting.

The splint is placed in a domestic oven at 100 C. for half an hour. After curing, the splint is cleaned and the shape is adjusted to a perfect fit with a file or sandpaper.

Because triethylene tetramine may cause contact dermatitis, the splint should not be applied until three or four hours after baking. Patients should be warned to report skin soreness that may be due to the splint. —*Ann. Phys. Med., 5:10, 1959.*

Parisitic Infection Examination

Adequate examination for parasitic infection requires purgation and study of three stool specimens. When examination is limited to normally evacuated stools, many parasites are missed, especially Endamoeba.

Purgation brings down parasites from the small intestine and cecum, where they usually lodge. The purge, which should contain no oil, is given early in the morning. Either three separate movements are collected or collection is continued until feces are watery; material must be from all portions of the stool. After emulsification with 0.85% solution of isotonic saline and removal of liquid if the stool was watery, the specimen is strained through a small funnel, lined with two layers of cheesecloth, into three test tubes, filling each halfway and adding saline to within 1 in. from the top. Tubes are centrifuged for three minutes at 2,500 r.p.m., the supernatant fluid removed, a small amount of saline added to the tubes, and sediment broken up. After refilling with saline, recentrifugation, and removal of supernatant fluid, contents of the three tubes are tested by (1) zinc sulfate flotation, (2) formalin-ether sedimentation, and (3) acid-ether centrifugation.

If only two methods are used, formalin-ether sedimentation and acid-ether centrifugation are preferable; the former is more effective for protozoa, the latter for helminthic eggs and larvae.—*Am. Jour. Clin. Path., 31:139, 1959.*

The pre-convention practice tip session of the Florida State Association has gained national recognition for the wealth of clinical know-how it reveals year after year. The following tips are from this year's meeting in Tampa, October 4.

Perianal Hernia Repair

The established Blakely technic for perianal hernia repair is greatly enhanced by the use of V-drape, the plastic sheeting that adheres to the surgical site. It is not necessary to close the anus with a suture. V-drape prevents soiling of the surgical site adequately. Mesh patches of flexible Mersilene (Ethicon) add valuable strength in this type of hernia repair.—*C. Brock, D.V.M., Pensacola, Florida*

Anal Gland Surgery

Anal gland surgery is replaced by electrocautery by Dr. C. S. Davis, Madison, Florida. A special insulated electrode is used to concentrate tissue destruction at the tip. Rotating the cautery to contact the major portions of the gland is effective and very brief cautery is required.

Diagnostic Awareness

The principal advantage of the electrocardiogram is to sharpen our diagnostic awareness. Once we become familiar with the more common cardiac defects, many can be detected by physical examination. At least 90% of ectopic systoles can be palpated. The strength of the pulse is also a valuable diagnostic criterion.—*C. R. Wallace, D.V.M., Augusta, Georgia*

Treatment for Solar Dermatitis in the Dog

Dr. Glen A. Severin, Colorado State University, demonstrating the tattooing technic developed at that institution before the Annual AAHA Meeting in Colorado Springs. Chronic solar dermatitis is a congenital abnormal reaction of the skin to sunlight. It is a disease of Collies, Shetland Sheep dogs, and mixed breeds closely related to these two. The exact reason for the susceptibility of these breeds to sunlight is unknown. Candlin, writing in VM, November 1956, suggested that on the information available the condition might be classified as chronic, polymorphic, light-dermatitis, of the eczema type. Since this disease is so specific to the above mentioned breeds, the fact of finding dermatitis of the nose associated with leukodermia and erythema is sufficient evidence to warrant diagnosis of the disease.

IN CASES OF ADVANCED COLLIE NOSE, or more properly, chronic solar dermatitis, the lesions may be present over the bridge of the nose, extending onto the naris and in both ears. This condition is most commonly seen in Collies or mixtures containing that blood, and it is a chronic, progressive loss of pigmentation. In time, histological sections approach the appearance of a low grade carcinoma. It is a disease that creates very difficult problems in treatment.

For several years the clinic at Fort Collins has been tattooing these animals with enough success to establish it as a practical method of treatment, especially in the lesion that is just beginning. Advanced lesions still require a very unfavorable prognosis.

The tissue is very vascular and keeping the tattooing from being mechanically washed out by hemorrhage is a problem. These patients are generally prepared with atropine, morphine and anesthetics. At the same time they receive coagulants, and generally a salicylate. Topical freezing has been tried to drive the blood from the surface of the skin, but the effect is so temporary that it does not work well.

After the animal is pre-anesthetized, the hair is clipped away from the lesions. Skin preparation with ether and disinfectants is avoided because the more mechanical irritation produced the more difficulty encountered during the process of tattooing.

The tattoo used was made by the Nicholson Manufacturing Company. It has three tattoo needles within the head of the instrument that are set as the corners on an isoceles triangle. This carries the ink in with less surface irritation than any other tattoo tried.

There is a great deal of scabbing on the nose. Extensive hemorrhage occurs just by scab removal. When it comes off you can get an idea of how effective the tattooing was.

These patients are returned at one month for checkup, and if we find areas that require further tattooing, it is advised. If the lesion is improving quite well, we advise them to return either at six months or a year to see how it is coming along. We have found that most of these need re-tattooing, but the second or third time it is just a very small spot, and it works satisfactorily.

It is not uncommon to see the lesion actually going up into the nares themselves; and when that happens we will follow it up as far as we can and try to do all of the area.

Lesions commonly will be found around the medial canthus of the eye that can be tattooed as well. Using a forceps in this area will stabilize the eyelid so that it tattoos very nicely.

No attempt is made to get a solid black field. A few lines will give the desired result and a light gray appearance in about three months time. The tattoo is applied at an angle with the skin rather than straight in. The needles are adjusted by using the inside of the ear to check the penetration that will show ink well in normal skin.

This instrument works very well for putting in serial numbers or writing in the owner's initials or name on the fold of the flank or on the ear.

On animals that have been tattooed, no surface treatment is attempted unless lesions are very severe. It is surprising how little irritation these animals show the day following tattooing. The lesion scabs up, and in most cases, generally in about five to eight days, the scab comes off.

Several inks have been tried, and the tattooing ink by the Westlund Manufacturing and Supply Company in Denver seems to be most satisfactory. All inks will work, but there is something about the consistency of this ink that works better than some of the others.

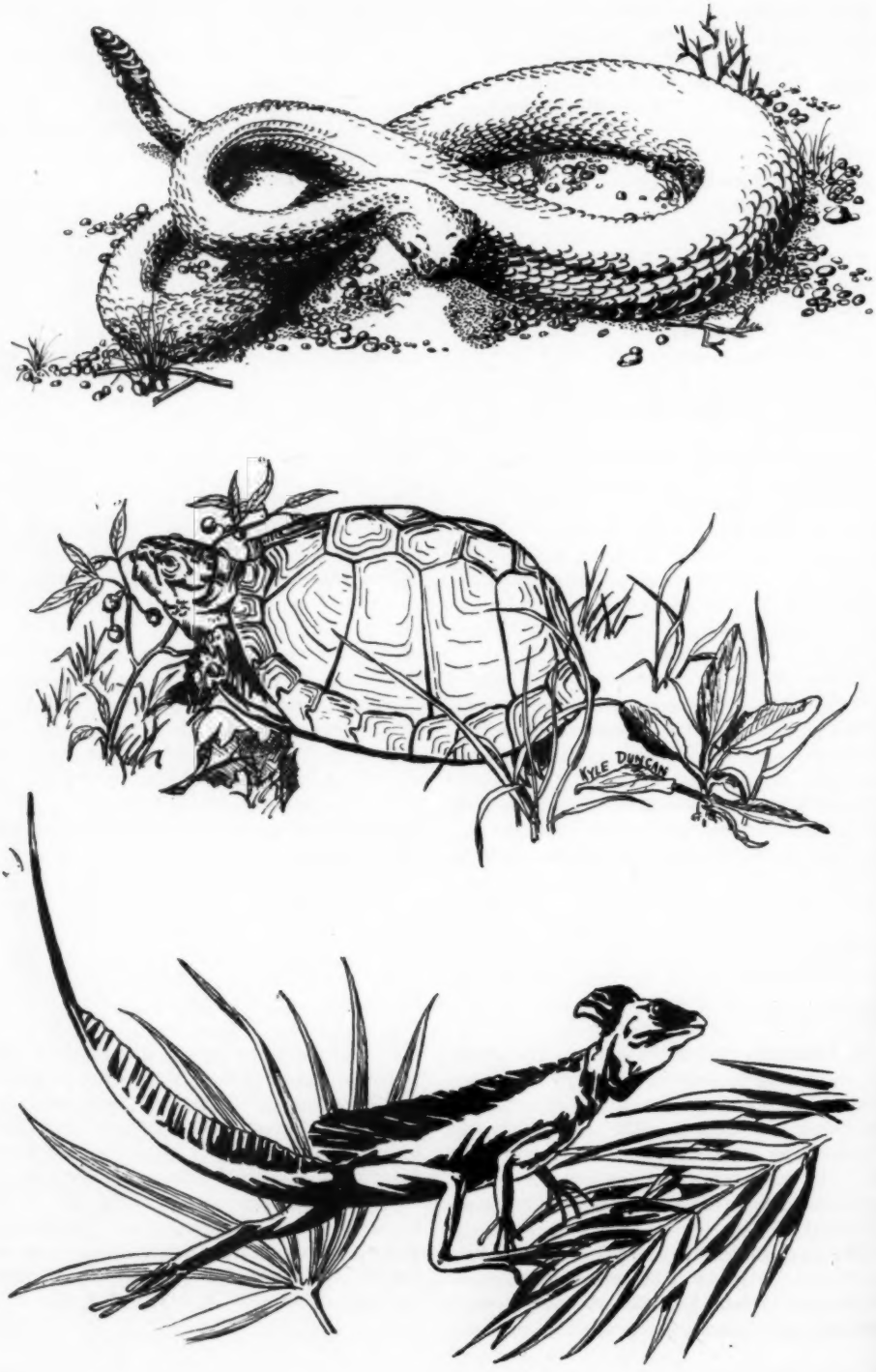
Many times the appearance of local sensitivity reactions is observed on re-tattooing. We start to tattoo and get quite a large amount of serum building up in that area. It takes as well, but there is a little thickening of the skin and some clear serum working out.

Blood-Letting

Phlebotomy, "to let blood," is probably the most ancient veterinary surgical operation. The oldest description of animal doctoring mentions it. The popularity of blood-letting did not wane until comparatively recently; once the panacea for every major and minor ill, is now as rare as it was universal.

The persistence of blood-letting's popularity was partly due to its frequently beneficial and seldom harmful effects. Better antiphlogistic measures were not known. Its victories were legion; its evil was its universal application. According to some, the following still constitute veterinary indications: hematopoetic effect desirable, hypertension, equine laminitis, cerebral congestion, and acute pulmonary congestion.

In a measure, blood-letting fell from favor not so much because physicians scorned the practice, but because men of letters subjected the practice to literary ridicule.—*Kenneth B. Haas, D.V.M.*


KYLE DUNCAN

Reptiles As Laboratory Animals

Snakes, lizards, turtles and crocodiles are discussed as a group by Clifford H. Pope of the Chicago Natural History Museum.* The initial difficulty in the care of reptiles, he states, lies in their slow reactions. A mammal, for example, will recognize its food at a distance and when hungry is quick to seize it. A reptile, on the other hand, may not recognize food when touching it, and even when hungry may delay for a considerable time seizing food after it does recognize it.

Less than one-half the time is required to care for reptiles that is necessary to care for mammals and birds. In temperate climates reptiles hibernate during the winter; in tropical climates they usually estivate during the hot, dry season. Quick death results in reptiles exposed to direct sunlight from which they are unable to escape.

Snakes. Snakes are essentially lizards. Their feeding habits and lack of limbs set them off from other reptiles. Handling presents special problems. Fear of them must be overcome by training; large snakes should be seized first by the neck and supported in one to several places when lifted. Venomous species should be handled in the same manner after first pinning down the neck with a snake stick. Very small snakes die in a few minutes if closely held in the hand. The author tells us to have a care that snakes do not strike glass or anything hard. They may hurt their mouths by so doing. He also states that snakes are strongly thigtactic in addition to being given to estivation and ecdysis and the males possess two hemipenes.

All snakes are carnivorous. None masticate their food. Ophiophagous snakes often swallow other snakes of equal size and length. Snakes should be fed three or four times a month. Rodents, any small mammals and birds, and insects for the small snakes, are suitable food. They are preferred alive but dead animals and insects are acceptable. Garter snakes are said to eat raw hamburger if live earthworms are mixed with it.

Most snakes are heavily parasitized, both externally and internally. In captivity, many snakes die from enteritis pneumonia. Mouthrot, seen only in captive snakes, is much feared by fanciers.

For breeding the viviparous species are preferable. The care of eggs is troublesome. For one thing, they must be collected almost as laid, since even slight desiccation kills the embryo. The eggs are also quickly spoiled by mold. The incubation period depends upon the temperature and the species. The gestation period in viviparous snakes is difficult to determine since it too depends upon the temperature at which the female is maintained, upon the species, and also because the spermatozoa may live for weeks in the oviducts before the ova are fertilized.

Lizards. Most of the more than 2,000 species of lizards that are known are either terrestial or arboreal; only a few are semi-aquatic. No marine species are known. The anoles, commonly called chameleons because of their remarkable ability to change color, are abundant in the American tropics. They may be obtained easily in any number from dealers and because of this are the ones ordinarily used in laboratories.

Most lizards will bite, but only two species, the Gila monsters, are venomous. Lizards should be picked up by the body, since many of them have fragile tails. These animals do not require exercise, hence they may be housed in almost any type of cage from which they cannot escape. Many will not drink from a vessel and should be sup-

*The Care and Breeding of Laboratory Animals, edited by Edmond J. Farris, John Wiley & Sons, Inc., New York, New York.

plied by sprinkling water on leaves.

Nearly all lizards eat insects or other small invertebrates. Only two species in the United States are herbivorous. Like snakes, lizards shed (ecdysis) at irregular intervals varying from twice a month to once a year, depending upon the species and the environment.

In the wild state, most lizards are parasitized both externally and internally. In laboratory specimens, pneumonia is common as are also intestinal ailments including amebiasis.

Some lizards are viviparous; some are oviparous. For breeding, the former should be chosen since lizard eggs are difficult to incubate; but the newborn can fend for themselves on arrival.

Turtles. There are but few species of turtles, only about 250. Not even dogs vary so much in size as do turtles. Adults range in size from less than a pound to the giant Galapopagous turtle which weighs several hundred pounds.

Turtles are the oldest living reptiles; they have changed little in 175,000,000 years. Hatchlings are sold by most pet shops and turtles, far more than any other reptile, are kept as pets. As such they seldom eat or grow or live more than a short period. There is almost no information available on the care of turtles, terrapins, or tortoises in captivity.

As is the case with snakes and lizards, although varieties of all three are to be found in desert areas, exposure of turtles to strong direct sunlight for more than a short period is fatal. Most turtles live near streams and often soak themselves in water when the weather is hot and dry. Soft-shell turtles and mud turtles are almost wholly aquatic.

All turtles are oviparous. In the United States the eggs are laid during June and July. Fertile eggs may be laid up to three years after a single mating by the diamondback terrapin.

Most turtles in the wild state are heavily infested with parasites.

Crocodilians. Crocodiles, alligators, caimans, and gavials complete the list of reptiles. Although too large for laboratory animals, these reptiles, because of their peculiar habits and characteristics and their relation to the ancient dinosaurs, are of great interest to students of evolution. They represent only a remnant of a past that dominated the animal kingdom. There are but 25 species still in existence and one of these, the Chinese alligator, is nearing extinction. All except two species—the American and the Chinese—are tropical or subtropical creatures.

Like other reptiles, young alligators can be boxed and shipped by express without food or water. However, if exposed to cold they are likely to refuse to eat afterward and, of course, perish after some weeks. They must be kept warm—80 F. is optimal for them. All are carnivorous and eat a great variety of small and large vertebrates. They should be fed about every second day.

"Tale of the Animal"

When a cow named Grady jumps into a silo or a small dog becomes trapped in a cave, the incidents are carried by all of the major wire services to newspapers everywhere. A dentist fits stainless steel dentures to the worn incisors of purebred breeder cows, and it becomes front page news in a renowned financial daily.

Animals make news with such frequency that the conclusion is obvious. People like to read animal stories. Rarely does the veterinary profession or the accomplishment of one of its members appear in these reports of animal misadventures although one of us is certain to be in a supporting role. If favorable mention is made, the odds are three to one that we will be referred to as *animal doctors, veterinarys or government scientists.* What is your comment? My suggestion is that we grab the tale of the animal next time around and let him carry a Doctor of Veterinary Medicine into public notice. — *Editor, The Oklahoma Veterinarian.*

KEEP UP WITH Medicine

What is a good procedure in repairing a fracture of the femur with a concurrent luxation of the femoral head of the same bone?

In most cases we have to do something positive to take care of both of them. That is, we just cannot drop this dislocation back in place and hope that it will stay there. We take care of most of them by performing an open approach. When it is open we take hold of the proximal segment, drop the dislocation back in place, then insert an intramedullary pin. We allow this intramedullary pin to stick out through the skin, above the femur. We then place a pin anterior into the wing of the ilium, another one posterior reaching back into about the tuberosity. These three pins are connected with a crossbar. All three must be lined up before they are connected with a bar. Pressure can be applied to hold the head into the acetabulum.

We would also set it so that the leg would be in a semi-flexed position, a position that he would normally carry the leg. After leaving this on for about a week, it is possible to remove it and then take the intramedullary pin out after fixation. From there on the procedure would depend on the individual case.—*Dr. Wade O. Brinker.*

Can the Jonas pin be used in a badly fractured radius?

This pin is especially suitable for fractures of the radius. In fact, the radius was really mother of the invention. One of the first cases in which it was used involved a badly fractured radius which could not be reduced by the usual method.

In reducing the radius, it is absolutely imperative to take two views, an AP and a lateral view, since the preliminary measurements have to be taken from the lateral view. The lateral view will show the curvature and the narrowness of the canal. We are dealing, as a rule, with fractures of the distal third. We insert the unit into the proximal fragment as a rule. If the fracture were in the proximal third, we would reverse it and insert it in the distal. In dealing with a fractured radius, we would as a rule resort to additional immobilization, especially the distal third, by means of the wooden splint.—*Dr. Salo Jonas.*

What is the most satisfactory way of treating infection of the canine glans penis and areas adjacent thereto?

Culturing reveals several organisms. One of the most important things I think is to run sensitivity tests and find out what might be effective against it, and then treat it with the antibiotic or therapeutic agent which seems to be indicated by the sensitivity test.

The cul-de-sac is an ideal place for bacteria to grow, and most dogs seem to be in apparently good health while having an infection back in the prepuce. You will see a follicular development. You will find there are lymph colored follicles in the cul-de-sac on those. I like silver nitrate cautery, using about 75% silver nitrate and then following that with saline flush. Do not forget the saline flush. If you do, you

Presented at the 26th annual meeting of the A.A.H.A., Colorado Springs, May 6-9, 1959.

will get quite an irritation, sloughing out of that tissue and possibly adhesions. You might want to use the proteolytic enzymes and improve the nutrition of the animal. I do not have a simple answer to the question.—*Dr. Jacob E. Mosier*

In your neurological examination, what special tests can be performed to aid diagnosis?

Cerebral spinal fluid studies are of some value under normal conditions. If I had, for instance, a purulent meningitis, which is rare in the dog, and primary meningitis is rare in the dog, I would expect to find increased cells, and these cells would be predominantly polymer. If I had distemper encephalitis, I would find an increase in the lymphocytes. If I have active hyperemia and permeability, my protein also goes up.

With the inflammations there are increased cells and increased proteins. In degenerative changes, one would expect to find normal cells and a raise in the protein. Actually it has been our finding that with brain tumors we seldom actually get much change in the cell or the protein.—*Dr. John T. McGrath*

What is a good treatment for ear mites, and how do you stop the unsightly secretion of wax afterwards?

Actually, with many of our newer antiparasitic agents, ear mites are not the problem they were a few years ago. We could choose such agents as rotenone, Chlorodane, Lindane preparations. We have used a preparation for a number of years that we think is very satisfactory, and that is benzyl benzoate with 1% lindane.

I know that some veterinarians have stated that this type of preparation cannot be used for cats. I have failed to see any unfavorable results from the use of this type of preparation, and I believe that it helps to clear up that brownish discharge more rapidly than some of the oily types of preparations.

In localized areas, like the ears, I do not believe there is any particular disadvantage. We ordinarily repeat the treatment in five to seven days, although I think in many cases one treatment is sufficient. Due to the fact that there are so many folds in the ear canal, it may be difficult to get medication into all cracks and crevices, and I believe that a repeated treatment is indicated.—*Dr. Kenneth W. Smith*

In the reduction of the fractured humerus with the Jonas pin, when is a wire loop placed around the bone?

In dealing with a badly comminuted fracture, we insert the compressed unit into the proximal fragment and project it into the distal. However, when there is not very much body left in the distal fragments, and there is quite a bit of separation of all the fragments (under slight pressure they open up like an umbrella) we have to put a wire loop around the loose fragments.

I would like to caution our colleagues who are using this method of fracture fixation about being too anxious and thus putting too many loops on. I heard of one case where the bone was practically strangulated by about ten loops, just like a spool. Of course, we have to be careful not to have it too tight. There is no danger of stopping any circulation if you put on one or two loops of stainless wire. Either stainless steel wire or common catgut can be used. It is sufficient to have it "not too tight," and I feel that in certain cases it is a great advantage.

I have had cases in which a very large fragment (about 2 in. long) was completely separated. Here there is a difference between my technic and my son's technic. He likes to apply one or two loops, and I often keep away from it. The case in question was a published case. It involved a very long fragment, completely separated. It was placed as closely as possible against the bare steel and nature did the rest.—*Dr. Salo Jonas.*

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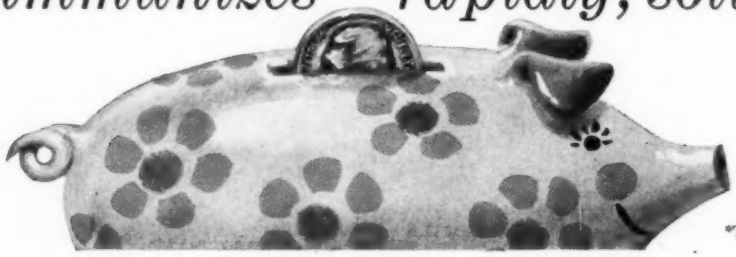

*Trade Mark

As the Internal Revenue Service presses more mechanical equipment into service, the chances of an income tax audit increase. Here are outlined basic steps in checking out depreciation procedures. This report makes a compelling case for adequate records and stresses the necessity for professional advice in certain cases.

THE TAX EFFECT OF DEPRECIATION

ANY TAX DEDUCTION is a thing to cherish at filing time for it has the effect of reducing your taxable income, but there are a few deductible items that have the rather special characteristic of flexibility. One of these is the deduction you are allowed for depreciation.

For example, let's say that the total amount you are allowed for depreciation of a particular machine is $5,500, which is to be deducted over the ten year period you have estimated as the useful life of the machine. Your deduction in the first year may be as low as $550, or it may be as high as $2,160. The amount you decide to deduct will certainly have an effect on your taxable profits for the year.

The amount you deduct for depreciation in a particular year will vary according to the method you choose to depreciate your equipment.

When you purchase a piece of equipment that you intend to use in your practice for more than a year, you cannot write off its cost as an expense in the year of purchase. However, you can deduct a portion of its cost as depreciation over the years of the equipment's useful life to the practice.

Now, how long will the piece of equipment be useful in the practice? This is a decision you must make in the year you purchase depreciable equipment. To aid you in making this decision, the Treasury Department has prepared a guide, Bulletin F (available from the U. S. Government Printing Office), which lists the estimated useful lives of many types of equipment that may be used in a trade or business.

However, Bulletin F is merely a guide. The life span it lists for a particular piece of equipment could be called the economic or useful life span. If the conditions in your practice are such that a new machine will receive more or less than usual use, then you should consider this in arriving at your own estimate of the period the machine can

reasonably be expected to be useful to you.

Another decision you must make in the year of acquisition is how much can you expect to get for the machine at the end of its useful life, that is, what will its salvage value be. Here, there are no government guides to help you. Fortunately, the only requirement is that your estimate be "reasonable."

The Changing Profit

Having estimated the useful life and salvage value of your equipment, you can easily determine the total amount you will be allowed to deduct for depreciation over the years. For example, if a new unit costs you $6,000, has an estimated useful life to you of ten years, and a salvage value of $500, your total depreciation deduction for the machine will be $5,500, never more.

Now comes the question of how to claim your deductions. Depending on the method of depreciation you choose to use, your deduction for the first year may vary as much as $1,610, from $550, to $2,160. Here are three approved methods for handling your depreciation.

Using the straight-line method, you subtract the estimated salvage value from the cost or other basis of the equipment and spread the balance in equal yearly amounts over the equipment's useful life.

The declining-balance method can only be used on new equipment with a useful life of three years or more. Salvage value does not have to be subtracted from the cost for figuring the depreciation, but you must not depreciate below a reasonable estimate for salvage. The depreciation is computed by applying a fixed percentage each year to the balance of unrecovered cost. This rate may not be more than twice the yearly percentage that would be used in the straight-line method. Thus, in the case of an asset with an estimated useful life of five years, the rate would be 40%, a ten year life, 20%, and so on.

Sum of the Years-Digits Depreciation

The sum of the years-digits method also can be used only for new equipment with a useful life of three years or more. The depreciation is computed by applying a fraction to the cost less the estimated salvage value. The numerator of the fraction is the number of years of useful life remaining, and the denominator is the sum of the years-digits corresponding to the estimated useful life. If the useful life were ten years, the denominator would be 55 (10+9+8+7+6+5+4+3+2+1.) In the first year, depreciation would be 10/55ths of cost less salvage value; for the second year 9/55ths, and so on.

Dollars and cents provide a good measure for comparing the effects of each of these methods. Let's stick with the example of the $6,000 machine. It has a useful life to the business of ten years, and an estimated salvage value of $500. The total amount to be depreciated then is $5,500. What could you deduct each year using one or other of these methods?

Table 1

Year	Straight Line	Declining Balance	Sum of the Years-Digits
1	$ 550	$1,200	$1,000
2	550	960	900
3	550	768	800
4	550	614	700
5	550	492	600
6	550	393	500
7	550	315	400
8	550	252	300
9	550	201	200
10	550	161	100
	$5,500	$5,356	$5,500

Note that with the declining-balance, the full amount of available depreciation was not deducted during the useful life of ten years. This sometimes happens with the declining-balance method. However, the unrecovered balance is not lost as a deduction. It will be available when the property is sold, retired or abandoned.

Additional First-Year Depreciation

If you wish, you can increase your deduction in the first year, regardless of the method you use, by taking advantage of an additional first-year depreciation allowance of 20%.

You can take the additional first-year depreciation allowance of 20% on equip-

ment costing a total of not more than $10,000 ($20,000 on a joint return.) The equipment must have a useful life of six years or more. The allowance would be subtracted from the cost of the equipment without consideration of salvage value. The remaining balance would be the basis for computing your regular method of depreciation. In other words, on our $6,000 machine, the 20% allowance would be $1,200, leaving $4,800 to which you can apply any of the approved methods of depreciation subject to the rules for the treatment of salvage value.

Thus, if straight-line depreciation were used, the total depreciation deduction for the first year would be $1,630; declining-balance depreciation $2,160; sum of the years-digits depreciation $1,982.

One consideration is that a large deduction in the first year will save taxes immediately (rather than later) and provide additional funds for self-financing.

New Public Relations Service

A new public relations service for the veterinary profession will get its start at the Eastern States Exposition in Springfield, Massachusetts. A joint project of the Massachusetts Veterinary Association and the Department of Veterinary Medicine of Pfizer Laboratories, the new service will be launched in two stages.

First, the Massachusetts Veterinary Association will present three hours of closed-circuit television programs daily throughout the nine days of the exposition — September 19 to 27.

Second, a series of interviews with leading veterinarians and experts in the fields of communications and public relations will be recorded on television tape. These interviews will be combined with special recorded segments of the daily program and transformed into the first documentary motion picture on veterinary public relations.

Veterinary-Nutrition Conference to be Held in Kansas City

The 2nd Veterinary-Nutrition Conference, sponsored by the Midwest Feed Manufacturers' Association will be held in Kansas City November 30 and December 1 at the Hotel President.

The committee planning for the event are: front row seated left to right: Dr. J. K. Farrell, Boonville, Mo.; Dr. W. E. Poley, Zip Feed Mills, Sioux Falls, S. D. and chairman of the committee; Maurice Wells, Davenport Elevators, Waterloo, Ia.; Dr. Chase Wilson, CCA, Kansas City, Mo.; Dr. R. E. Lubbehusen, Ralston Purina Co., St. Louis, Mo.

Standing left to right: John Wessman, MFMA; Dr. C. M. Cooper, VETERINARY MEDICINE Editor, Kansas City, Mo.; Dr. Cloy Knodt, Cargill-Nutrena Research Farm, Elk River, Minn.; Dr. J. A. McCrea, Platte City, Mo.; Dr. James Bailey, Walnut Grove Products Co., Atlantic, Ia.; Lloyd Larson, MFMA.

Editorial Comment

PROFESSIONAL KNOWLEDGE AND WORKABLE PROGRAMS

A RECENT NATIONAL MEETING OF COUNTY AGENTS in Kansas City reflected a great deal of soul searching. In the words of Dick Hanson, editor of *Successful Farming*, "Must the county agent soon give way to something new in the face of rapidly changing farm conditions even though he has served his original purpose well?"

At this meeting several points of view were made public. A dairy farmer was convinced he wanted no agent on his farm who did not know dairying better than he did. Many expressed the view that the county agent may be losing the confidence of his leading farmers and find himself working for men who should not be farming at all.

Editor Hanson points out on the positive side that many feel the successful county agent of the future will be a community coordinator. He must show his farmers the way in broad management but not too much detail. He must show how to bring several projects together into a paying enterprise through the skillful use of capital, good management of labor, and intelligent marketing. To achieve these ends, county agents must use the many agencies available, most of which are now competing with him to serve the farmer.

While county agents are being guided into strange new fields of public relations, veterinarians also are seeing comparable shifts in the demands for their services. In contrast to the narrowing responsibilities of the county agent, veterinarians are expected to know more and more about how feeding practices and husbandry methods relate to herd health and efficient management.

From the standpoint of future veterinary education and refresher training, it is interesting to observe practicing veterinarians who have already made the transition and are serving as skilled independent consultants to the larger, more efficient farm operations. In many cases, the veterinarians who make the shift rapidly have had previous training in farm management and related agricultural courses. Many have working experience as herd managers. This seems to suggest that further attention to these phases might provide the best background for effective disease prevention planning. It is no longer enough to be master of the newest diagnostic methods, drug developments and surgical technics. Veterinarians are expected to step into the vacuum the county agents are leaving and know more about the details of the farm operation than the client in order that medical know-how can be utilized to make money.

While we move to rapidly organize our professional knowledge into workable programs judged not by loss or salvage of an individual animal, but by improved profits, we will be counting heavily on the skills of the modern county agent to help promote the merits of these advanced programs to the farming community and supply valuable assistance in overall planning.

Rapid changes of responsibility can be most un-nerving to the individuals involved, but growing teamwork between veterinarians and county agents promises service to agriculture previously undreamed of.

mastitis, as a continuing problem, has no equal successful therapy depends on early diagnosis

INVESTIGATIONS to determine the genera of organisms present in the normal bovine mammary gland indicated that a very similar bacterial flora existed in non-mastitis glands and the gland exhibiting clinical mastitis. It could be postulated that the bovine mammary gland may serve as a respository for numerous potential mastitis producing agents, and that their potential mastitis producing qualities may be initiated by the factor of inefficient management, which in general can be classified under trauma and/or stress.

Mastitis may be described as a "do it yourself disease." The necessary tools are found in the tool box of inefficient management. Prevention in general is nothing more than exercising good management procedures and dairy practices.

When the problem herd is encountered, management procedures should be given critical attention. We seldom encounter mastitis as a problem in the dairy herd of a "good cowman."

It has been demonstrated that a cooperative program by dairy specialists, veterinarians, milk inspectors, milking machine salesmen, and dairy farmers can aid in prevention of mastitis. Major emphasis was placed on the following simple prevention program:

Inheritance (Selection)

1. Cows with well attached udders.
2. Rapid easy milkers.
3. Avoid excessively large udders.

Therapeutic Approach Used in Experimental Program

	First Signs	Mild	Acute	Per-acute	Chronic
Milking out of infected quarter (half hour intervals)	†††	†††	†††	†††	
Intravenous administration of oxytocin (10 units)	††	†††	†††	†††	†††
Intravenous administration of selected sulfonamides (1 grain/lb. body weight)		†	†††	†††	
Oral administration of selected sulfonamides (½ grain/lb. body weight)			††	†††	
Intramammary administration of sterile saline (50 to 500 ml.) with minimum dosage of 400,000 units crystalline penicillin and 1 gram streptomycin			†	†††	†††
plus pancreatic enzymes and antihistamines				†††	††

†Indicates frequency of use in each type of clinical case.

Housing

1. Provide adequate stall space.
2. Provide adequate high quality bedding.
3. Avoid dampness, cold and drafts.
4. Prevent udder trauma; prevent high door sills; prevent rubbish in yards and pasture; prevent slippery floors; prevent corn stubble or brush pasture; prevent driving with dogs; prevent flies.

Milking

1. Keep milking machine in optimum operating condition.

Mastitis

Prevention and Therapy

2. Have machine checked annually by manufacturer's representative.

3. Follow manufacturer's operating instructions.

4. Remove teat cup when milk ceases to flow.

5. Keep rubber inflation clean and replace twice a year.

6. Never milk with more than two units per operator.

7. Use the strip cup routinely.

8. Call the veterinarian immediately on detecting the first signs of mastitis.

Results of Mastitis Prevention Program

	Clinical Mastitis	Antibiotics in Bulk Samples
Nov.	31.1%	8.1
Dec.	15.0%	....
Jan.	34.4%	5.4
Feb.	43.5%	13.5
Mastitis Meeting with Producers and Prevention Program Presented		
March	7.3	0.0
April	7.3	0.0
May	5.1	0.0

Figures represent percentage of herds having clinical mastitis and percentage of bulk milk samples containing antibiotics before and following presentation of mastitis prevention program.

Therapy

Successful therapy depends on a simple method of early diagnosis. None are more efficient for farmers than the strip cup. The strip cup should be used routinely at each milking and when mastitis is detected, therapy should be initiated immediately.

The outlined procedure of therapy is not advocated as a panacea, but when correctly applied, it is an effective approach. Successful prevention and therapy depend greatly on utmost cooperation of the client. The desired client relationship can often be cultivated by the veterinarian's interest and knowledge of mastitis and taking trouble to explain the principles involved.

Systemic medication is an effective professional approach to mastitis therapy. The secretions of the infected quarter should be evacuated and this followed by intravenous and/or oral selective sulfonamide medication with concomitant milking out of the infected quarter. The routine use of the strip cup is a valuable aid to early diagnosis, and competent veterinary service is of paramount importance in the control of mastitis. *—I. A. Schipper, The British Veterinary Journal, September 1959.*

Veterinary Medicine Week

Governor Docking proclaimed the week of October 19-24 as Veterinary Medicine week in Kansas. Here with Governor Docking as he signed the proclamation are Lowell Novy, Garden City, student chairman for Kansas State University's veterinary school open house October 24; Dr. E. E. Leasure, dean of K-State's veterinary school and president-elect of the American Veterinary Medical association; and Dr. L. D. Jernigan, Council Grove (at right), president of the Kansas Veterinary Medical association.

Books reviewed in this department and any other books, if available, may be obtained by remitting published price to the publisher.

Practitioner's Bookshelf

THE MERCK VETERINARY MANUAL, 1,385 pages; Merck & Company, Inc., Rahway, New Jersey, Publishers. Price —$7.50

This handy manual is intended to provide veterinarians with concise, authoritative, readily available information on symptoms, prophylaxsis, treatment, etiology, prognosis, laboratory aids, and prescriptions for both the common and uncommon problems of veterinary science. The fact that there are over two hundred contributors, ensures the accuracy and completeness of all basic physiologic, pathologic, and therapeutic information contained in the 1385 pages of *The Merck Veterinary Manual.*

The book contains a wealth of compact information in this field. For instance — common as well as rarely encountered allergies are discussed with their diagnostic procedures and modern treatment. Virtually every type of infectious disease is covered with the sulfa and antibiotic indications and special dosage requirements. Breeding and obstetrics is given a most comprehensive section including sterility, its prophylaxis and therapy. The use of cortisone in arthritis is thoroughly discussed as are neoplasms, eye, ear, throat and gastrointestinal disorders. Nutrition is accorded a very special section with the nutritional requirements of every domestic, fur and zoo animal included as well as convenient tables on the composition of feed stuffs. An entire section is devoted to poultry.

An index of unusual scope is provided. Its use will save considerable time, and the cross titling proves an extra convenience. Plainly indicated textual cross references are frequent throughout the book.

RODEO COWBOY, by *Gene Lamb;* 179 pages. Naylor Press, San Antonio, Texas. Price — $3.95

Here is a story that would make a fine addition to the practitioner's waiting or personal library, particularly in the rodeo circuit towns of the central and western portions of the United States — but you can add the great rodeo town — New York City — in for good measure. *Rodeo Cowboy* tells the story of the men who risk their necks in the bone crushing confines of the rodeo arena, and of the women who watch and wait.

Written between the lines and paragraphs of this story is the characterization of the rodeo cowboy, a breed as separate and distinct in his tenacity for individualism as the veterinarian himself. The action story itself is told with understanding and pathos. Those who follow the sport will find *Rodeo Cowboy* entertaining and rewarding.

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To Research Center Staff

Pitman-Moore Company has announced the addition of Dr. Madelaine O. Maykut to its Research Center staff. She is a senior pharmacologist in the pharmacology department.

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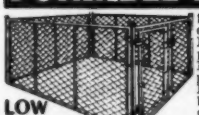

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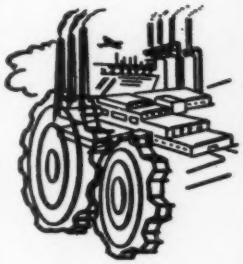

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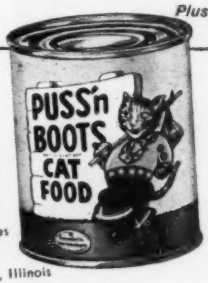

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Proud owner Barbara Clausen is shown beside Black Orbit, 17-month-old Angus steer judged Grand Champion Steer at 1959 Illinois State Fair.

It was "no contest" at the 1959 Illinois State Fair as Black Orbit, 1000-lb. Angus steer, easily won the Grand Champion Steer ribbon. "Orbit" was raised from birth and shown by Barbara Clausen, 17, of Manito, Illinois. As suggested by her veterinarian, Barbara has included VpC RIBAD II in "Orbit's" rations since he was a few weeks old. VpC RIBAD II is an ideal supplement for all livestock and poultry. For top supplement results, recommend highest quality VpC RIBAD II to your clients.

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Dr. C. F. Schlotthauer
1893—1959

Dr. Carl F. Schlotthauer, a member of the staff of the Mayo Clinic from 1924 to 1958, and emeritus professor of veterinary medicine in the Mayo Foundation, Graduate School, University of Minnesota, was killed instantly by an accidental shotgun blast while he was hunting ducks from a boat near Kellogg, Minnesota, on October 21, 1959.

Doctor Schlotthauer was born on December 3, 1893, at Madison, Wisconsin, the son of Elizabeth Schieke Schlotthauer and Frank G. Schlotthauer. He attended the University of Wisconsin from 1911 to 1913 and was attached to the Veterinary Corps of the United States Army in 1918. He received the degree of doctor of veterinary medicine in 1923 from the St. Joseph Veterinary College, in St. Joseph, Missouri.

Doctor Schlotthauer came to Rochester on May 1, 1924, as an assistant in veterinary medicine in the Mayo Foundation. He was appointed a first assistant in the Mayo Foundation on July 1, 1926, and an instructor in veterinary medicine on October 1, 1927. He was advanced to assistant professor in 1932, associate professor in 1937 and professor in 1945. He retired from the Mayo Clinic and Mayo Foundation on December 31, 1958.

During World War II Doctor Schlotthauer served as a member of the Minnesota State Committee for the procurement and assignment of veterinary surgeons.

In 1958 Doctor Schlotthauer was given the Mark L. Morris Animal Foundation Small Animal Award by the American Animal Hospital Foundation "for his many contributions as an author and lecturer in small animal medicine and for his outstanding ability as a veterinarian in coordinating research among the medical sciences." In 1959 he was presented with a certificate of merit by the University of Minnesota for long and faithful service as a member of the faculty of the Graduate School of that university. He was the author of some 177 contributions to the literature on veterinary medicine.

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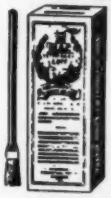

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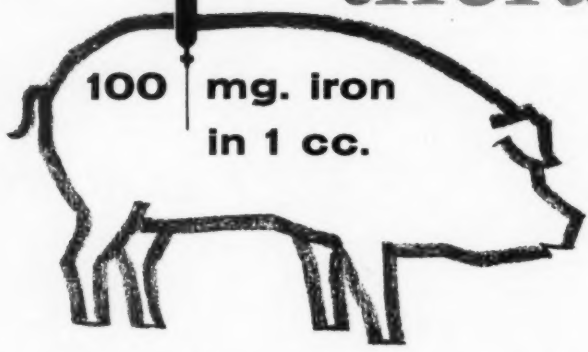

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STRESS associated with: RETAINED PLACENTA, obstinate MILK FEVER, GRASS TETANY and SURGERY, LAMINITIS or FEED FOUNDER in cattle and horses; canine and feline DERMATOLOGIC DISORDERS, nonspecific LAMENESS, ARTHRITIS, SPONDYLITIS, VERTEBRAL DISC SYNDROME, SUMMER ECZEMA, ALOPECIA, OTITIS (with topical or systemic antibiotic treatment).

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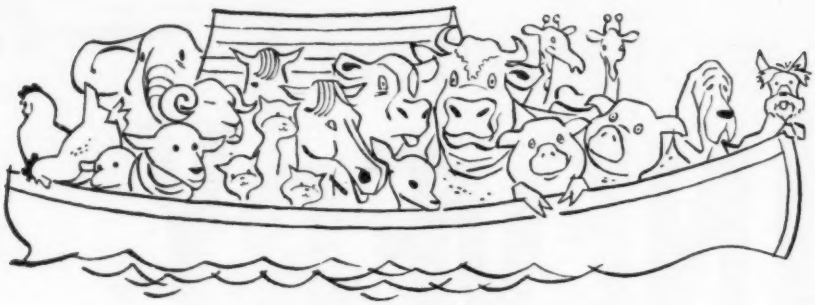

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Because Daribiotic is bacteri*cidal*, resistant organisms have little opportunity to develop. Convenient dosage forms for the treatment of small and large animals broaden the usefulness of Daribiotic.

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DARIBIOTIC Injectable—for prompt treatment of bacterial infections.
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*U.S. Patent No. 2,565,057

1. Barr, F.S., Carman, P.E. and Harris, J.R.: Synergism and Antagonism in Antibiotic Combinations; Antibiotics and Chemotherapy; 4:818 (1954).
2. Baker, W.L.: Clinical Use of Injectable Neomycin and Polymyxin B; Veterinary Medicine, 53 (1959): 275.
3. Barr, F.S., Harris, J.R. and Carman, P.E.: Intramuscular Treatment of Staphylococcic Mastitis with Neomycin Sulfate and Polymyxin B Sulfate; J.A.V.M.A., 132 (1958): 110.

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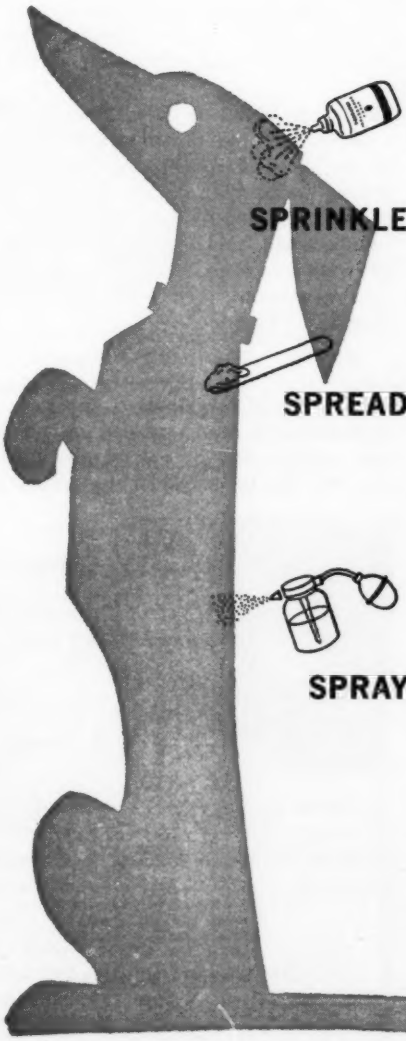

bactericidal against a wide range of gram-negative and gram-positive organisms / negligible development of bacterial resistance / nontoxic to mammalian tissue / no bacterial cross-resistance / no cross-sensitization to other agents / stable and effective in presence of blood, pus, milk, serum

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in bacterial infections of the eye and ear, operative wounds, burns

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for compartments, on the road heat for compartments, self-contained refrigerator, insulated sealed top, rear visibility, and many other features. For details ask Astoria Body Corporation, U. S. Route 24, Astoria, Illinois.

A free **Dose of Thiostrepton** (Gargon—Squibb) is being offered as a trial treatment for bovine mastitis. Packaged in a convenient, easy-to-use disposable syringe, the free offer is being made with the purchase of every 11.

A directory, **Where to Buy, Board or Train a Dog,** is now being prepared. The reference work will list by state and community dog breeders, boarding kennels and training kennels, together with breeds kept and boarding and training facilities offered. Listing in Where to Buy, Board or Train a Dog will be restricted to active members of the recently introduced Gaines Professional Feeder Plan for the opinion makers of America's dog field. Eligible prospective members will receive full details of the plan by writing to the Gaines Professional Service Department, 275 Cliff Street, Battle Creek, Michigan.

New **Footgard Polyethylene Boots** are made of lightweight film and can be pulled on over regular shoes. Boots are watertight and will last for several hours. They come

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in rolls of 50 and 100 at an average cost of 14 cents a pair. Details are available from Plasticsmith, Inc., P.O. Box 1071, Pittsburg, California.

A 17-minute film covering the highlights of a Rutgers University conference on the use of **Serpasil** (Ciba) in poultry production is now available without charge to interested

groups. Sound and color prints (16 mm.) can be obtained from any of the following offices of Ideal Picture Corporation: 233 West 42nd Street, New York 36, New York; 58 East South Water Street, Chicago 1, Illinois; 18 South Third Street, Memphis 3, Tennessee; and 1840 Alcatraz Avenue, Berkeley 3, California. Preferred showing dates should be indicated.

Exact, authoritative **Hemoglobin Measurement** can now be provided while the patient is still at hand by using The Coleman "25" Photo-Hemoglobinometer. This miniaturized spectrophotometer is a precision-built,

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self-contained system designed specifically for on-the-spot, direct scale reading of hemoglobin concentration in whole blood. Analysis takes approximately three minutes. For complete information, request Bulletin B-237, Coleman Instruments Inc., Maywood, Illinois.

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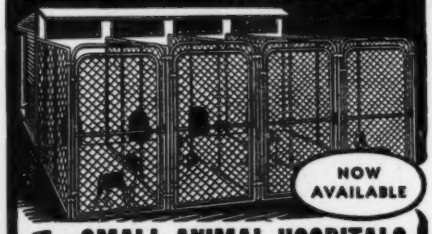

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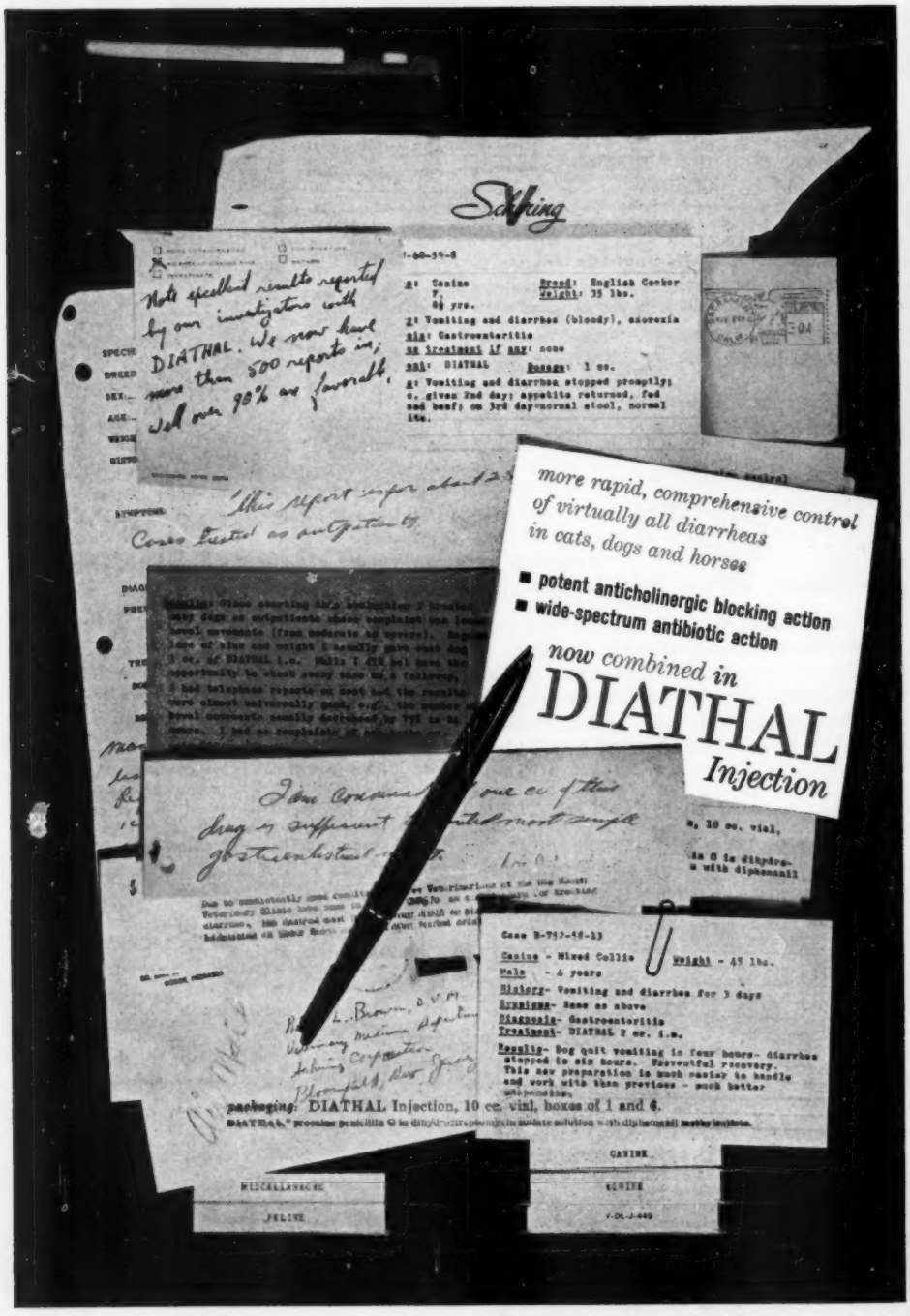
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of virtually all diarrheas
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■ potent anticholinergic blocking action
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To Extension Staff

Dr. Robert E. Gibbs, formerly with Whitmoyer Laboratories at Myerstown, Pennsylvania, has been named to the extension veterinary science staff of the Pennsylvania State University.

Dr. Robert E. Gibbs

Doctor Gibbs will fill a vacancy on the extension staff. He will have the rank of associate professor.

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Slack to Assignment on Island

Appointment of Dr. J. Howard Slack as veterinarian in charge of U. S. Department of Agriculture's Animal Disease Eradication activities in Honolulu, Hawaii, effective May 31, 1959, has been announced. In his new assignment, Doctor Slack will be responsible for administering the Division's programs dealing with control and eradication of diseases of livestock and poultry in cooperation with the State officials of Hawaii.

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Pharmaceutical Research organization has opening for Spanish/English Speaking Veterinarian for position as Head of Veterinary Research-International. Should have practice experience, and be familiar with foreign Veterinary needs. Knowledge of tropical Veterinary Medicine advantageous. Position will involve considerable travel to establish and supervise foreign clinical research projects, contacting Veterinary scientists and analyzing data.

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SUPPLIED: 50 mg. scored ORA-BOLS, bottle of 100.

REFERENCES: 1. Pollock, S.: Control of Nonspecific and Specific Enteritis in the Dog; read at the First Regional Conference on the Nitrofurans in Veterinary Medicine, Wilmington, Delaware (June 5, 1958). 2. Fisher, G. W.: Oral Use of Furadex in Canine Diarrhea, N. A. Vet. **39**:133-134 (Mar. 15) 1958.

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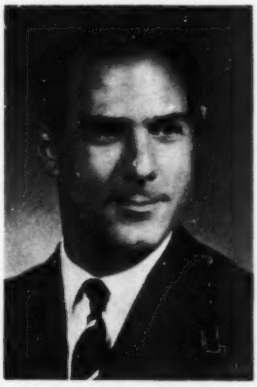
To Jen-Sal Post

Dr. Michael Hawksley has been named Director of Biological Production for Jensen-Salsbery Laboratories, Kansas City, Missouri. In his new position, Doctor Hawksley will supervise the production of Jen-Sal vaccines, bacterins and serums for both large and small animals. Doctor Hawksley has been at Jensen-Salsbery since April 5, when he and his family moved to the United States from England. He is a graduate of the Royal Veterinary College, London, England, and served on the staff of the same school for three years in the Department of Pathology. He was formerly at Bayer Biological Institute in London.



Dr. Michael Hawksley

Animal Care Panel Meets

More than 500 members representing a cross-section of medical and biological research — research scientists, veterinarians, superintendents of laboratory animal colonies, laboratory animal breeders, animal technicians, and manufacturers of laboratory animal supplies, will attend the Animal Care Panel's 10th annual meeting at the Sheraton-Park Hotel in Washington, D. C., October 29-31, 1959.

The conditions under which laboratory animals are bred, housed, fed and treated will be reported and discussed in six separate sessions during the three-day meeting. In addition to the reports, panel discussions, and scientific and commercial exhibits, films on the care of laboratory animals will be shown continuously each day.

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- *to focus farmers' attention on the $2 billion losses they now suffer from livestock diseases.*
- *to teach farmers to rely on their veterinarian as the best way to prevent these livestock losses.*

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Still another essayist discussed paratuberculosis (Johne's disease) as a complicating factor since animals infected with the acid-fast Mycobacterium paratuberculosis frequently react when they are being tested for bovine tuberculosis. Fortunately Johne's disease does not spread easily in a herd. Suspected animals may be tested with johnin intradermally in the cervical region. The dosage of johnin is twice that of tuberculin, and a reading is made 48 hours after the injection. A positive reaction is similar to a tuberculin reaction.

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Canine Whipworm Infection

In the article, Clinical Diagnosis of Canine Whipworm Infection, which appeared on page 514 of the October 1959 issue of VETERINARY MEDICINE, the following correction should be made. The magnification of 92 which appears above the figure in the article should be changed to read "136."

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